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A STUDY OF THE LABORATORY SYSTEM

STATE OF ILLINOIS

Department of Mental Health and Developmental Disabilities

Department of Public Health

Department of Public Aid

U. S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
Atlanta, Georgia 30333

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A STUDY OF THE LABORATORY SYSTEM

STATE OF ILLINOIS

Department of Mental Health and Developmental Disabilities

Department of Public Health

Department of Public Aid

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U. S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
Atlanta, Georgia 30333

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A Study of the Laboratory System,
State of Illinois,
Department of Mental Health and
Developmental Disabilities

ATTACHMENT #2 - Phase II,
A Study of the Laboratory System,
State of Illinois,
Department of Public Health

ATTACHMENT #3 - Phase III,
A Study of the Laboratory System,
State of Illinois,
Department of Public Aid

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I. INTRODUCTION AND AIM OF THE STUDY

A. Study Inception

In July 1978, the Illinois Governor's Cost Control Task Force submitted Recommendation #518. The Recommendation reads as follows:

> 518. Use Public Health facilities to do laboratory work for the Departments of Public Aid and Mental Health.
>
> All three departments require certain laboratory services which they either provide internally or purchase as required. The result is a relatively high per-sample cost. In addition, some of the purchased services are of questionable quality.
>
> To improve overall services and reduce operating costs, all health-related laboratory activities should be centralized in the Department of Public Health. The state now spends approximately $6.3-million annually for laboratory services in the Department of Public Aid and another $1.3-million for Mental Health. By expanding the Chicago facility in the Department of Public Health, these services could be provided at a total cost of $3.3-million for an annual saving of $4.3-million.

The Department of Public Health took this recommendation under consideration. In September, 1978, the Director of Public Health, State of Illinois, initiated a letter to the Director, Illinois Department of Public Aid (DPA); and the Director, Illinois Department of Mental Health and Developmental Disabilities (DMHDD). The letter proposed the establishment of a study committee from the three agencies to respond to the Governor's Cost Control Task Force recommendation. Dr. Hugh-Bert Ehrhard, Chief, Division of Laboratories, was appointed as the Department of Public Health (DPH) representative. Dr. John Nelson, Coordinator of Medical Services, DMHDD, and Mrs. Wilma Gay, Program Services Coordinator, Bureau of Provider Services, DPA, represented their agencies on the committee.

The study proposal submitted to the Interagency Study Committee was as follows:

"A. Proposal

Determine feasibility in the following areas:

1. <u>Economic</u> (cost benefit)
   a. Space requirements (space is no longer available at the Chicago facility).
   b. Current costs (by all <u>three</u> agencies).

c. Estimated consolidated operating costs.
d. Specimen transport.

2. Clinical

a. Provision for stat laboratory work.
b. Quality control.

3. Political

a. Most of the laboratory work in this proposal is currently provided by the private sector.

4. Legal

a. The right of the indigent to choose his/her health delivery facility is a consideration.
b. A proposal of laboratory consolidation in New York (similar to this recommendation) was halted by litigation.

"B. Charge to the Committee:

1. Determine the legitimacy and dimensions of problems listed by the Task Force.
2. Determine the feasibility of the study proposal.
3. Develop alternate solution(s) to the problem(s).
4. Frame implementation plans."

The committee met on November 16, 1978. At the first meeting, the committee discussed the Task Force recommendation and its effect on the three departments and began to collect data on the laboratory services of their agencies.

B. Implementation and Focus

On March 30, 1979, Dr. Ehrhard requested assistance from Dr. Edward L. Cavenaugh, Director, Laboratory Management Consultation Office, Bureau of Laboratories, Center for Disease Control (CDC). Dr. Cavenaugh asked two of his staff members, Mr. Brian Dugan and Mr. Bill Adams, to meet with Dr. Ehrhard at the annual meeting of the Association of State and Territorial Public Health Laboratory Directors. This meeting was held on April 8, 1979, and an attempt was made to determine the best method of providing assistance to the Illinois Governor's Cost Control Task Force Committee.

Mr. Dugan then met with the committee in Springfield, Illinois, on April 26, 1979. It was at this meeting that the type of consultation assistance that CDC would provide to the study committee was identified.

Dr. Ehrhard then finalized the consultative request in a letter to Dr. Cavenaugh dated May 2, 1979.

Dr. Ehrhard presented the basic plan to divide the study into three phases. The rationale for this approach was that before any recommendations could be developed, each agency's laboratory service needs and resources had to be identified.

Dr. Cavenaugh, on May 11, 1979, suggested that it may be appropriate to rephrase the question to: "What is the most effective, yet cost efficient, way to provide needed laboratory services to the three State agencies?" The Task Force Committee agreed that responding to this question was a logical expansion of Recommendation #518.

C. Study Objectives

As a result of the previously outlined meetings and correspondence, the following study objectives were established:

1. To assess the current operational laboratory system of each of the State agencies included in the study.

2. To identify laboratory needs and problems, if any, unique or common to each State agency.

3. To develop evaluation criteria and to evaluate, for each State agency, the feasibility of two identified alternatives:
   a. Alternative #1--The present laboratory operations;
   b. Alternative #2--Laboratory operations with the elements of #518 included.

4. To recommend a laboratory system which satisfactorily meets the established criteria.

II. STUDY DESIGN AND METHODOLOGY

A. Study Design

It was decided to conduct this study in four phases. Phase I (May-July, 1979) is a review of the current and future laboratory service needs and resources of the DMHDD. Phase II (July-September, 1979) is a review of the DPH laboratory needs and resources. Phase III (October-December, 1979) addresses the DPA program. Study results of these three phases have been completed and the individual reports are attached to this report.

Phase IV includes an analysis of the data obtained in Phase I, II, and III, in an attempt to present the combined laboratory needs and resources of DMHDD, DPH, and DPA identified in developing a system of laboratory service responsive to the requirements of each of the departments. The following report contains the findings and recommendations developed out of Phase IV activities.

B. Methodological Procedures

1. Data Collection Instruments

The purpose of Phases I, II, and III of this study has been to identify the laboratory needs and resources of DMHDD, DPH, and DPA. In order to accomplish this purpose, certain types of data had to be collected and analyzed: laboratory budgets, personnel, and workload data from the three departments had to be obtained for each of their facilities. It was necessary to identify the users of laboratory services within each of the departments and to identify the source from which these laboratory services were obtained. Other users and potential users of DMHDD, DPH, and DPA services had to be identified. Analysis of these types of data should: (1) identify the type and number of tests being performed by the three departments; (2) identify the facilities and programs of the three departments which utilize laboratory testing services; (3) identify health laboratory needs of the three departments which are currently not being met by the existing laboratories; and (4) suggest testing services which should be added or deleted.

2. Data Collection Procedures and Site Visits

a. Phase I: DMHDD

The large volume of data which is required for this study indicated that on-site visits to the State would be necessary. From May 7-18, 1979, Mr. Adams and Mr. Dugan visited all of the DMHDD facilities collecting laboratory workload data, cost of laboratory operation, and contractual services, and other related data from each of the facilities. Examples of the data gathering instruments are included in the Phase I report.

In a close-out session on May 18, 1979, the consultants met with Dr. Nelson, Mrs. John, and representatives of DPA and DPH to discuss preliminary impressions regarding the on-site visits.

b. Phase II: DPH

The Phase II data collection site visit was from July 16-27, 1979. Mr. Adams, Mr. Raymond L. Schrunk, and Mr. Walter Guest, Management Consultants, Laboratory Management Consultation Office, interviewed representatives of the public health organizations throughout the State of Illinois and the laboratory personnel at the three Division of Laboratories sites and at local health departments. An example of the data gathering instruments are included in the Phase II report. On July 27, the CDC consultants met with Dr. Ehrhard and representatives of the DPA, and the DMHDD to discuss the preliminary findings regarding this on-site phase of the study.

c. Phase III: DPA

From November 5-8, 1979, Mr. Adams and Mr. Schrunk met with Illinois DPA officials to gather data and discuss the laboratory needs and resources of the DPA. On September 25, 1979, Mr. Arnold Hicks and Mr. Ray Schrunk traveled to Baltimore, Maryland and to Washington, D.C., to meet with Federal officials of the Department of Health, Education, and Welfare. They spent three days meeting with officials of the Medicaid program. On February 21, 1980,

Mr. Adams met with New York City Health Department personnel about the New York experience with contracting for Medicaid laboratory services.

On February 20-21, 1980, Mr. Adams met in Chicago with the Task Force Committee to discuss the findings of Phase I, II, and III and to determine the format of the Summary Report, Phase IV, presented in the following pages.

III. FINDINGS

A. Phase I: DMHDD

1. Description of Laboratory Services

The Department of Mental Health and Developmental Disabilities has 28 facilities to provide Mental Health and Mental Retardation services in Illinois. They are located throughout the State. Twenty-six of the facilities provide inpatient services and thus need laboratory support. The other two do not provide inpatient services and have only limited clinical laboratory needs. The Illinois Institute for Juvenile Research needs laboratory analyses only for annual physical examinations for their own employees. The Illinois Institute for Developmental Disabilities provides services on an outpatient basis only and their laboratory support is obtained from the Illinois State Psychiatric Institute.

Fourteen of the facilities are designated as Mental Health Facilities. They are:

Singer MH Center	Manteno MH Center
*East Moline MH Center	Tinley Park MH Center
Galesburg MH Center	McFarland MH Center
Zeller MH Center	Adler MH Center
Chicago-Read MH Center	Meyer MH Center
Elgin MH Center	Alton MH Center
Madden MH Center	Chester MH Center

Ten of the facilities are designated as Developmental Disabilities Centers. They are:

Dixon Dev. Center	Jacksonville Dev. Center
Howe Dev. Center	Lincoln Dev. Center
Ludeman Dev. Center	Fox Dev. Center
Shapiro Dev. Center	Murray Dev. Center
Waukegan Dev. Center	Bowen Dev. Center

Another facility, Anna, is designated as both a Mental Health and Developmental Center. The remaining facility is the Illinois State Psychiatric Institute. Although it has not been designated in either

*Closed 6/30/80.

category, it is primarily a Mental Health facility. Figure 1 shows the geographical location of each of the facilities.

Table 1 is a comparison of laboratory tests and costs to the Admissions (ADM) and the Average Daily Residents (ADR) for each of the facilities for FY 1978. For this Table, the ADM and ADR figures were combined to project the maximum number of residents for each facility. The number of tests performed per ADM, ADR ranged from a low of less than one to a high of 84. The average for all facilities was 28. The laboratory cost per ADM, ADR ranged from $4.19 to $149.18. The average cost for all facilities was $70.98.

Table 1 indicates that the laboratory activities at the individual facilities are quite varied. There is one trend, however, and it is found in Table 2. Table 2 utilizes the data from Table 1, but displays it according to the type of facility. The Mental Health Centers average 24 tests at a cost of $55.54 per ADM, ADR. The Developmental Centers average 35 tests and $96.88 per ADM, ADR.

The Developmental Centers would be expected to have a higher laboratory utilization because of the physical problems of many of the Developmentally Disabled patients.

Table 3 shows the laboratory work performed at the facility and the direct costs for the DMHDD facilities. In FY 1978, the most recent year for which complete data was available, the DMHDD laboratories conducted 962,199 tests at a direct operating cost of $1,830,928. The FY 1979 figures are projected from 9-month data. The projected FY 1979 total is approximately 80,000 tests fewer than the FY 1978 total. This indicated decrease may be nothing more than an error in projection.

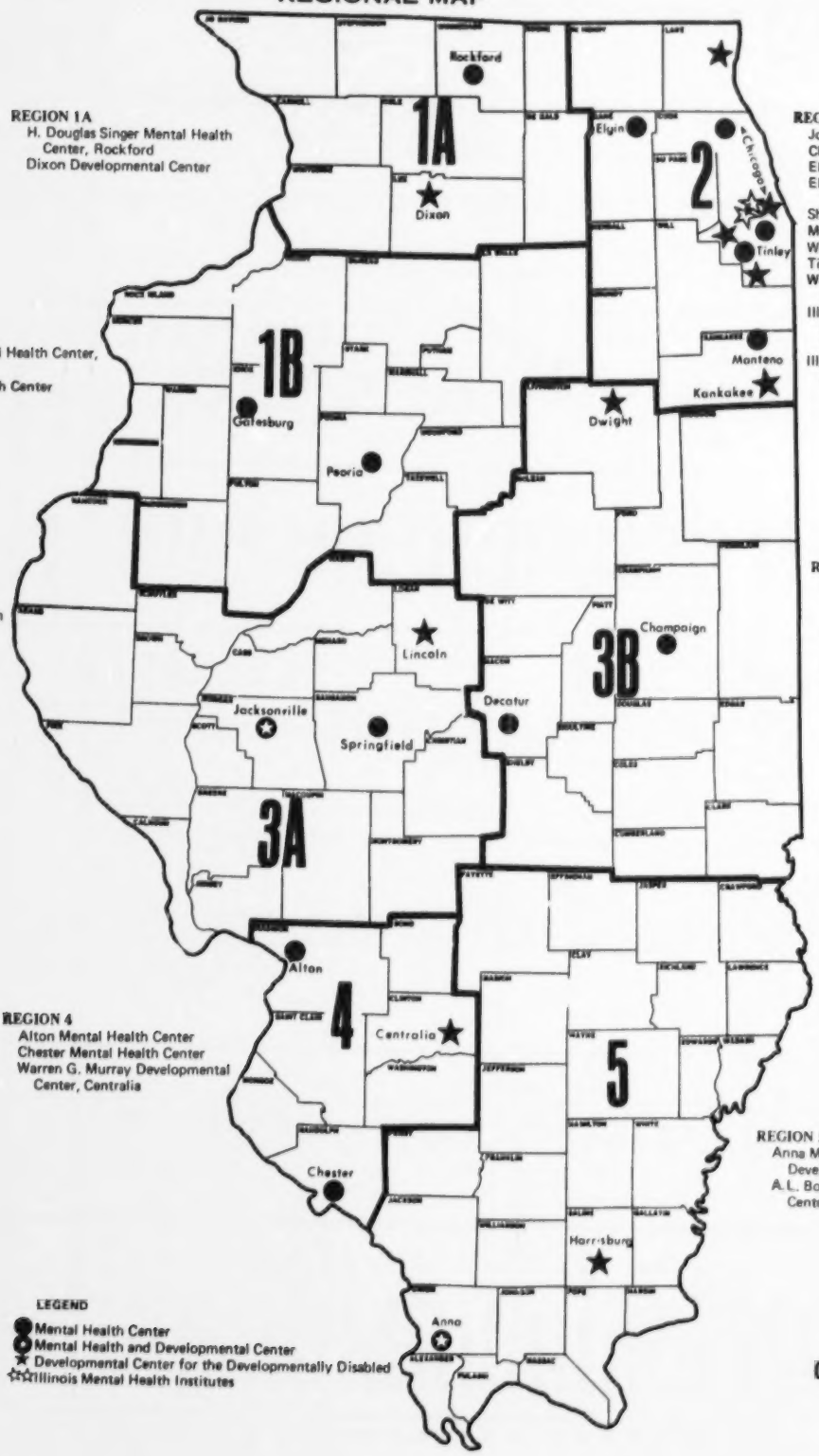
Table 4 shows that the DMHDD facilities paid contract laboratories $240,599 for 21,863 tests. Thus, the total FY 1978 DMHDD laboratory costs were $2,071,527 for 984,062 tests.

The average cost per test performed at the facility is $1.90. The average cost per test contracted out is $10.19. The much greater cost for contract laboratory services can be explained by differences in accounting procedures and because the more sophisticated, and thus more expensive tests, are usually obtained through contract. The average cost per test, including those performed at the facility and those

FIGURE 1

ILLINOIS DEPARTMENT OF MENTAL HEALTH & DEVELOPMENTAL DISABILITIES

REGIONAL MAP



REGION 1A
H. Douglas Singer Mental Health Center, Rockford
Dixon Developmental Center

REGION 1B
George A. Zeller Mental Health Center, Peoria
Galesburg Mental Health Center

REGION 2
John J. Madden Mental Health Center
Chicago-Read Mental Health Center
Elgin Mental Health Center
Elisabeth Ludeman Developmental Center
Shapiro Developmental Center
Manteno Mental Health Center
Waukegan Developmental Center
Tinley Park Mental Health Center
William A. Howe Developmental Center
Illinois Mental Health Institutes:
Illinois State Psychiatric Institute
Institute for Juvenile Research
Illinois Institute for Developmental Disabilities

REGION 3A
Andrew McFarland Mental Health Center, Springfield
Jacksonville Mental Health & Developmental Center
Lincoln Developmental Center

REGION 3B
Herman M. Adler Mental Health Center (Children's Unit), Champaign
Adolf Meyer Mental Health Center (Adult's Unit), Decatur
Wm. W. Fox Developmental Center, Dwight

REGION 4
Alton Mental Health Center
Chester Mental Health Center
Warren G. Murray Developmental Center, Centralia

REGION 5
Anna Mental Health & Developmental Center
A.L. Bowen Developmental Center, Harrisburg

LEGEND
Mental Health Center
Mental Health and Developmental Center
Developmental Center for the Developmentally Disabled
Illinois Mental Health Institutes

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TABLE 1

DMHDD FY 1978 Laboratory Tests and Direct Costs
Per Estimated Facility Resident

	Facility	Admissions (ADM)	Average Daily Residents (ADR)	Total ADM & ADR(2)	Total Tests	Total Direct Costs	Average # of Tests Per ADM & ADR	Average Cost of Tests Per ADM & ADR
M	Singer	1,117	158	1,275	11,904	$ 42,941	9	$ 33.68
D	Dixon	18	1,483	1,501	48,176(1)	130,562	32	86.98
M	E. Moline	544	310	854	35,415	64,393	41	75.40
M	Galesburg	142	613	755	39,333(1)	53,503	52	70.86
M	Zeller	1,339	96	1,435	15,303	46,965	11	32.73
M	Chicago-Read	5,502	508	6,010	209,251	299,902	35	49.90
M	Elgin	1,756	731	2,487	82,553	250,770	33	100.83
D	Ludeman	7	361	368	6,400	55,155	17	149.88
M	ISPI	1,127	139	1,266	41,963	97,568	33	77.07
D	Shapiro	7	809	816	68,830	121,733	84	149.18
M	Madden	3,540	244	3,784	50,841	71,703	13	18.95
M	Manteno	1,461	950	2,411	98,914	236,917	41	98.27
M	Tinley Park	3,332	302	3,634	85,681	102,060	24	28.08
D	Waukegan	3	358	361	1,820	20,113	5	55.71
D	Howe	3	359	362	15,512	20,859	43	57.62
D	Jacksonville	23	399	422	21,939	45,609	52	108.03
D	Lincoln	55	955	1,010	47,023	113,556	47	112.43
M	McFarland	537	106	643	8,204	20,560	13	31.98
M	Meyer	176	78	254	1,051	10,357	4	40.78
M	Adler	89	35	124	57	520	<1	4.19
D	Fox	13	172	185	4,849	24,459	26	132.21
M	Alton	734	259	993	15,736	106,463	16	107.21
M	Chester	100	255	355	10,529	22,438	30	63.21
D	Murray	59	550	609	12,656	39,388	21	64.68
D	Bowen	65	187	252	5,084	13,140	20	52.14
D/M	Anna	972	404	1,376	45,038	59,893	33	43.53
	TOTALS	22,721	10,821	33,542	984,062	$2,071,527	Avg. 28	Avg. $ 70.98

M = Mental Health Center, D = Developmental Center
(1) = Dixon and Galesburg not complete.
(2) = Admissions and Average Daily Residents figures were combined to project the maximum number of residents for each facility.

TABLE 2

DMHDD FY 1978 Laboratory Tests and Direct Costs
Per Estimated Facility Resident by Type of Facility

Facility and Type	Admissions (ADM)	Average Daily Residents (ADR)	Average # of Tests Per ADM & ADR	Average Cost of Tests Per ADM & ADR
Mental Health				
Singer	1,117	158	9	$ 33.68
E. Moline	544	310	41	75.40
Galesburg	142	613	52	70.86
Zeller	1,339	96	11	32.73
Chicago-Read	5,502	508	35	49.90
Elgin	1,756	731	33	100.83
ISPI	1,127	139	33	77.07
Madden	3,540	244	13	18.95
Manteno	1,461	950	41	98.27
Tinley Park	3,332	302	24	28.08
McFarland	537	106	13	31.98
Meyer	176	78	4	40.78
Adler	89	35	< 1	4.19
Alton	734	259	16	107.21
Chester	100	255	30	63.21
			Avg. 24	Avg. 55.54
Developmental				
Dixon	18	1,483	32	86.98
Ludeman	7	361	17	149.88
Shapiro	7	809	84	149.18
Waukegan	3	358	5	55.71
Howe	3	359	43	57.62
Jacksonville	23	399	52	108.03
Lincoln	55	955	47	112.43
Fox	13	172	26	132.21
Murray	59	550	21	64.68
Bowen	65	187	20	52.14
			Avg. 35	Avg. 96.89
Mental Health and Developmental				
Anna	972	404	33	43.53

TABLE 3

DMHDD Laboratory Workload and Direct Costs
For Facility Laboratories, FY 1976-1979

Facility	Number of Tests Performed at Facility				Direct Cost for Laboratory Operation*			
	1976	1977	1978	1979**	1976	1977	1978	1979**
Singer	12,104	12,136	8,950	7,643	$ 26,111	$ 24,437	$ 20,618	$ 26,749
Dixon	NA	44,808	48,176	35,800	29,136	137,095	117,472	98,532
E. Moline	36,524	36,413	34,686	29,424	56,579	57,134	59,977	69,651
Galesburg	38,224	42,247	39,333	38,928	41,900	46,650	48,700	55,195
Zeller	16,166	16,302	15,030	15,432	36,194	36,774	41,039	48,800
Chicago-Read	266,646	259,621	208,754	196,990	304,300	300,091	295,914	307,447
Elgin	87,597	91,314	82,542	73,521	179,313	177,592	250,520	288,601
Ludeman	--	--	--	--	--	--	--	--
ISPI	37,225	37,616	41,457	40,423	77,069	78,609	90,256	87,200
Shapiro	52,112	54,670	66,454	63,428	66,677	52,205	85,093	73,376
Madden	41,047	47,573	50,633	47,578	51,625	62,339	67,972	103,233
Manteno	90,346	44,625	97,926	89,029	203,885	115,974	222,650	184,403
Tinley Park	69,773	80,852	85,273	81,748	75,745	77,863	99,482	108,473
Waukegan	--	--	--	--	--	--	--	--
Howe	10,047	10,236	15,117	20,099	NA	5,807	17,598	21,047
Jacksonville	15,020	17,056	20,840	22,635	23,846	30,095	34,694	43,871
Lincoln	NA	48,690	46,537	30,510	NA	101,549	107,999	98,508
McFarland	14,728	8,985	7,473	6,750	21,995	12,616	15,973	16,976
Meyer	--	--	--	--	--	--	--	--
Adler	--	--	--	--	--	--	--	--
Fox	NA	NA	4,849	3,901	24,681	24,575	24,459	23,270
Alton	17,295	20,552	15,736	--	91,636	106,259	106,463	26,408
Chester	9,867	11,844	10,425	10,127	21,883	22,019	21,351	23,463
Murray	11,464	10,599	12,122	17,887	27,374	28,366	32,599	44,832
Bowen	4,856	4,378	5,019	6,592	13,939	14,734	12,496	7,501
Anna	43,845	36,407	44,867	44,868	55,666	54,726	57,603	64,247
TOTALS	874,886	936,924	962,199	883,313	$1,429,554	$1,567,509	$1,830,928	$1,821,783

-- = No Activity.
NA = Data Not Available.
*Source: Management Cost System, Cost of Operations Report.
**Projected from 9 month data.

TABLE 4

DMHDD FY 1978 Laboratory Cost/Test Estimates

Facility	Facility Lab Workload	Facility Lab Direct Cost	Cost/Test	# of Contracted Tests	Cost of Contracted Tests	Cost/Test	Total # of Tests	Total Direct Costs	Total Cost/Test
Singer	8,950	$ 20,618	$2.30	2,954	$ 22,323	$ 7.56	11,904	$ 42,941	$ 3.61
Dixon	48,176	117,472	2.43	NA	13,090	NC	48,176(1)	130,562	2.71(1)
E. Moline	34,686	59,977	1.72	729	4,416	6.06	35,415	64,393	1.82
Galesburg	39,333	48,700	1.23	NA	4,803	NC	39,333(1)	53,503	1.36(1)
Zeller	15,030	41,039	2.73	273	5,926	21.70	15,303	46,965	3.07
Chicago-Read	208,754	295,914	1.41	497	3,988	8.85	209,251	299,902	1.43
Elgin	82,542	250,520	3.03	11	250	22.72	82,553	250,770	3.04
Ludeman	--	--	--	6,400	55,155	8.62	6,400	55,155	8.62
ISPI	41,457	90,256	2.18	506	7,312	14.45	41,963	97,568	2.33
Shapiro	66,454	85,093	1.28	2,376	36,640	15.42	68,830	121,733	1.77
Madden	50,633	67,972	1.34	208	3,731	17.94	50,841	71,703	1.41
Manteno	97,926	222,650	2.27	988	14,267	14.44	98,914	236,917	2.40
Tinley Park	85,273	99,482	1.17	408	2,578	6.32	85,681	102,060	1.19
Waukegan	--	--	--	1,820	20,113	11.05	1,820	20,113	11.05
Howe	15,117	17,598	1.16	395	3,261	8.26	15,512	20,859	1.34
Jacksonville	20,840	34,694	1.66	1,099	10,915	9.93	21,939	45,609	2.08
Lincoln	46,537	107,999	2.32	486	5,557	11.43	47,023	113,556	2.41
McFarland	7,473	15,973	2.14	731	4,587	6.27	8,204	20,560	2.51
Meyer	--	--	--	1,051	10,357	9.85	1,051	10,357	9.85
Adler	--	--	--	57	520	9.12	57	520	9.12
Fox	4,849	24,459	5.04	--	--	--	4,849	24,459	5.04
Alton	15,736	106,463	6.77	--	--	--	15,736	106,463	6.77
Chester	10,425	21,351	2.05	104	1,087	10.45	10,529	22,438	2.13
Murray	12,122	32,599	2.69	534	6,789	12.71	12,656	39,388	3.11
Bowen	5,019	12,496	2.49	65	644	9.91	5,084	13,140	2.58
Anna	44,867	57,603	1.28	171	2,290	13.39	45,038	59,893	1.33
TOTALS	962,199	$1,830,928	Avg. $1.90	21,863	$240,599	Avg. $10.19(1)	984,062	$2,071,527	Avg. $ 2.11(1)

-- = No Activity.
NA = Data Not Available.
NC = Not Computed.
(1) = Dixon and Galesburg not complete.

obtained through contract is $2.11. The range of cost/test for facility laboratories is from $1.16 to $6.77. The cost/test for contract services ranges from $6.06 to $22.72. The combined cost per test for the DMHDD facilities ranges from $1.19 to $11.05.

Table 5 lists the number and type of laboratory personnel at the DMHDD facilities in FY 1978. There are 100 employees in the DMHDD laboratory facilities.

Table 6 shows the number of tests and the direct costs per full-time equivalent (FTE) for each facility laboratory. The average number of tests per FTE ranged from 2,425 to 16,399 for all DMHDD laboratories. The average was 9,651. The average direct cost per FTE ranged from $12,230 to $26,616. The average for all DMHDD laboratories was $18,346.

Table 7 shows the laboratory testing workload for each of the 22 facility laboratories. As would be expected, Clinical Chemistry and Hematology are the major areas of work.

2. Needs and Problems

Interviews conducted with personnel at each of the facilities pointed out several needs and problems of the DMHDD laboratory system.

a. The Department needs to establish and implement standard laboratory requirements for admissions, transfers, annual physicals, and releases. During interviews conducted at the facilities, it became readily apparent that each facility determines its own policy regarding laboratory requirements for admissions, transfers, annual physicals, and releases.

The study team realizes that a complete standardization program cannot be established. There are many variables which must be considered. For example, the laboratory tests needed for a severely retarded youth entering a facility will differ markedly from the tests needed for an alcoholic admission. Testing requirements at the short-term mental health facilities differ from those at the long-term developmental disabilities facilities. Thus, if standard

TABLE 5

DMHDD FY 1973 Facility Laboratory Staffing
Full-time and (Part-time) Positions*

Facility	Path.	Clinical Lab Supervisor	Lab Tech I	Lab Tech II	Lab Tech III	Microbiologist I	Microbiologist II	Microbiologist III	Microbiologist Super. Micro.	Biochemist I	Biochemist II	Lab Helper & Lab. Assist.	Clerk Typist II	Clerk Typist III	Other	Total
Singer					1										1-Rad Tech III	2
Dixon		1		2(2)												3 (2)
E. Moline		1	(2)	1									1			3 (2)
Galesburg		1		2												3
Zeller	(1)	1		1												2 (1)
Chicago-Read	(1)	1	1	7		1	1			1			2		1-Mental Health Tech III	15 (1)
Elgin	1 (2)	1		5			2				(1)	1	1	1		12 (3)
ISPI				2					1			1				5
Shapiro		1		2			1									4
Madden		1		4												5
Manteno	(1)	1		4	1			1						1		8 (1)
Tinley Park		1		3			1									5
Howe				1												1
Jacksonville		1		1											(1)-Dental Assistant	2 (1)
Lincoln		1	1	1		2							1			6
McFarland				1												1

*Positions in ( ) are part-time.

(continued)

TABLE 5 (cont'd)

DMHDD FY 1978 Facility Laboratory Staffing
Full-time and (Part-time) Positions*

Facility	Path.	Clinical Lab Supervisor	Lab Tech I	Lab Tech II	Lab Tech III	Microbiologist I	Microbiologist II	Microbiologist III	Microbiologist Super. Micro.	Biochemist I	Biochemist II	Lab Helper & Lab. Assist.	Clerk Typist II	Clerk Typist III	Other	Total
Fox						1						1				2
Alton		1														1
Chester								1								1
Murray	(1)			1			1									2 (1)
Bowen				1												1
Anna	(1)	1		1		1										3 (1)
TOTALS	1 (7)	14	2 (2)	40 (2)	2	5	6	2	1	1	(1)	3	6	2	1-Mental Health Tech III 1-Rad Tech III (1)-Dental Assistant 2 (1)	87 (13)

*Positions in ( ) are part-time.

TABLE 6

DMHDD FY 1978 Facility Laboratory Workload and Direct Costs
Per Laboratory Full-Time Equivalent (FTE)*

Facility	Facility Lab Workload	Facility Lab Direct Costs	# of FTE's	# of Tests Per FTE	Direct Cost Per FTE
Singer	8,950	$ 20,618	1.4	6,393	$14,727
Dixon	48,176	117,472	5.8	8,306	20,254
E. Moline	34,686	59,977	3.9	8,894	15,379
Galesburg	39,333	48,700	3.0	13,111	16,233
Zeller	15,030	41,039	2.0	7,515	20,520
Chicago-Read	208,754	295,914	17.7	11,794	16,718
Elgin	82,542	250,520	11.9	6,936	21,052
Ludeman	--	--	--	--	--
ISPI	41,457	90,256	4.9	8,461	18,420
Shapiro	66,454	85,093	4.3	15,454	19,789
Madden	50,633	67,972	4.6	11,007	14,777
Manteno	97,926	222,650	11.4	8,590	19,531
Tinley Park	85,273	99,482	5.2	16,399	19,131
Waukegan	--	--	--	--	--
Howe	15,117	17,598	1.0	15,117	17,598
Jacksonville	20,840	34,694	1.5	13,893	23,129
Lincoln	46,537	107,999	7.3	6,375	14,794
McFarland	7,473	15,973	1.0	7,473	15,973
Meyer	--	--	--	--	--
Adler	--	--	--	--	--
Fox	4,849	24,459	2.0	2,425	12,230
Alton	15,736	106,463	4.0	3,934	26,616
Chester	10,425	21,351	1.0	10,425	21,351
Murray	12,122	32,599	2.0	6,061	16,300
Bowen	5,019	12,496	0.8	6,274	15,620
Anna	44,867	57,603	3.0	14,959	19,201
TOTALS	962,199	$1,830,928	99.7	Avg. 9,651	Avg. $18,364

-- = No Activity.
*Source: Management Cost System, Cost of Operations Report.

TABLE 7

DMHDD Laboratory Workload by Major Category
FY 1978

Facility	Bacteriology	Parasitology	Serology	Urinalysis	Hematology	Clinical Chemistry	Pathology	Miscellaneous	Total
Singer	181	---	8	2,810	5,464	487	---	---	8,950
Dixon	14,701	---	878	7,250	14,393	10,589	365	---	48,176
E. Moline	3,293	25	651	14,305	8,346	8,066	---	---	34,686
Galesburg	2,059	143	465	3,853	11,506	21,004	---	303	39,333
Zeller	1,043	---	1,445	2,980	6,175	3,387	---	---	15,432
Chicago-Read	3,110	114	5,762	33,020	54,136	110,508	166	1,938	208,754
Elgin	2,874	243	2,428	4,501	25,163	46,838	495	---	82,542
ISPI	629	12	1,349	3,832	13,334	21,793	---	508	41,457
Shapiro	2,922	213	1,630	8,661	25,672	27,005	351	---	66,454
Madden	1,046	154	3,630	11,264	14,026	19,678	---	845	50,633
Manteno	4,449	528	3,558	20,682	27,144	41,312	184	69	97,926
Tinley Park	3,526	22	4,669	19,339	24,559	28,265	---	4,871	85,273
Howe	451	27	1,016	1,688	5,046	6,381	---	508	15,117
Jacksonville	---	---	1,253	460	8,045	11,015	---	67	20,840
Lincoln	5,852	4,788	1,118	6,443	14,728	13,434	5	169	46,537
McFarland	---	---	637	805	3,085	2,946	---	---	7,473
Fox	360	552	144	1,848	1,620	324	---	1	4,849
Alton	1,229	---	752	1,200	4,200	8,100	255	---	15,736
Chester	369	---	949	1,996	1,325	5,778	8	---	10,425
Murray	2,881	187	390	1,206	6,946	473	2	37	12,122
Bowen	607	2	---	1,126	3,270	7	---	7	5,019
Anna	3,144	---	1,660	15,610	12,165	11,769	340	179	44,867
TOTAL	54,726	7,010	34,392	164,879	290,348	399,159	2,171	9,502	962,601

laboratory requirements are to be developed, they must be specifically oriented to the type of patient in order to prevent "over testing" of some patients and "under testing" of others. However, standardization of laboratory test requirements, to the degree possible, is an extremely important component of a centralized, regionalized or other shared laboratory service system. If the majority of the testing requirements for admissions, transfers, annual physicals, and releases can be standardized, then a standard laboratory system can be established which will provide the required testing in a routine manner. These tests, along with the routine employee physicals comprise the majority of the tests required at the facilities. Once they become routine requests, then the urgency for test results (stat requests) is reduced. These specimens can then be mailed or delivered to another site for timely processing without reducing the quality of the medical care provided to the patient.

Most of the DMHDD facilities no longer provide acute medical-surgical care to the facility residents. This type of care is usually provided by hospitals and physicians within the local community. The DMHDD laboratories, however, report that they receive many "stat" requests. The study team does not question the need for some "stat" requests. However, "stat" requests should be limited to only those cases where medically indicated. We realize that only the attending physician can make the medical urgency decision. However, through education programs and consultation with the physician, the number of "stat" requests can be reduced to the medical minimum and most of the requests for liver profiles, drug screens and complete blood counts will become more routine. These routine requests, in addition to the admission, annual physical and transfer tests, can then be considered as part of a consolidated system.

b. The Department needs to establish adequate and standard internal and external quality assurance programs. Many of the laboratorians who were interviewed expressed concern about their existing internal

quality control procedure. Also, the laboratory supervisors at many of the facilities were not pleased with the external quality control program in which they participated.

Some of the DMHDD laboratories do not participate in any extended quality assurance program (proficiency testing). The difficulties with the internal quality control, as described to the study team, included outdated or nonstandard methodologies, non-availability of appropriate standard and control materials, and inadequate mathematical and statistical quality control techniques.

To insure that test results obtained at the various DMHDD facilities are accurate and reproducible will require the establishment of standard and adequate quality assurance programs.

c. The Department needs to negotiate statewide or regional contracts for those laboratory services which are needed but which cannot be provided by the facility laboratories.

There are two basic reasons that indicate certain laboratory tests should be obtained through contract: (1) Complexity of the test. Some tests require very sophisticated equipment and/or specialized and highly trained personnel. It would not be economically feasible to equip and staff each facility to perform these tests. (2) Frequency of test requests. Some tests are requested only once or twice a month. Reagents needed for the test become outdated and thus are wasted. Because of the infrequent number of requests, the laboratorian does not have adequate experience to perform the test and thus it is difficult to maintain competence and proficiency. Examples of tests which appear to be indicated for obtaining through contract are Pap smears, chemistry profiles, drug analyses, parasitology, and most of the bacteriology cultures.

Pap smears are currently being obtained by the facilities in a variety of ways. Some facility laboratories have their own pathologist who reads the Pap smears. Other facilities have a "consultation contract" with a pathologist. The contract often includes the reading of Pap smears. And, finally, some facilities

contract with a hospital or independent laboratory to read the Pap smears on a cost per slide basis.

Chemistry profiles are also being obtained in a variety of ways. Some facilities request a 6-test profile, others 12, others 18, and others even more extensive profiles. The price paid by the facilities for these profiles range from $5.00 to over $20.00.

The costs for drug analyses are also very different depending on the specific arrangement of the local facility. One facility uses the Division of Laboratories, Department of Public Health at no cost. Some do their own drug analyses at the facility laboratory.

Some facilities use the Division of Laboratories for bacteriology and parasitology, some do their own work and others use local hospitals or contract with other clinical laboratories. Table 8 provides a sample of the contract cost for tests. Some of the facilities could not identify the actual cost for a specific test because of their accounting procedures; therefore, those facilities are not included in the Table. Because there are so many different types of tests requested, we selected only enough tests to be representative. For a more complete description of tests done on site and tests contracted for, please see Attachment 1, Table 6.

Table 9 shows the high and low contract cost for eleven of the procedures. There is obviously a large variation in the price paid for contract tests.

d. The Department needs to develop a supply system for the facility laboratories which is responsive to their needs. With very few exceptions, the facility laboratory supervisors related problems regarding the existing system for obtaining necessary supplies, media, and reagents. The system, as described to the study team, required a three-month advance order, and approximately a three-month delivery delay. Thus, the facility laboratories are required to anticipate and project their workload six months in advance. There are three negative consequences to the current system: (1) Either over order and lose money because the supplies become outdated; or (2) be caught short, and thus be unable to do the

TABLE 8

Contract Costs for Selected Tests by Facility

FY 1978

TEST	Singer	East Moline	Zeller	Chicago Read	Elgin	Ludeman	Shapiro	Madden	Manteno	Tinley Park	Waukegan	Howe	Jacksonville	Lincoln	McFarland	Adler	Alton	Chester	Murray	Anna	Bowen
SMA 6						17.00															
SMA 12	6.53					24.00					20.00		16.00		8.50	15.00	5.40				6.75
SMA 18 -						28.00									12.95						
SMAC 24 -																	9.00		7.50		
20 Test Profile																22.00					
Thyroid T3	7.00	6.00	11.00							5.50	5.00	5.50	10.00	5.00	8.50		4.28	5.00			
Thyroid T4	7.00	6.00	11.00							5.50	8.00	5.50	10.00	5.00	8.50	15.00	4.28	5.00			
T3, T4						53.00			9.50										12.00	8.00	9.50
Dilantin	13.00	21.00	25.00	8.00	18.00	12.00	14.50	15.00	13.25	18.00	15.00	18.00		18.00	9.00		16.20	18.00	15.00	16.75	
Cholesterol	5.50					14.00									4.00					4.00	
Triglycerides	5.60	5.00		10.00					7.50	8.50		8.50	16.50	6.00				6.25		5.50	
CBC						14.00					8.00		11.00		4.70	8.00	3.60				
Pap Smears	4.20		4.00				5.00						5.00		2.35	7.00	3.15				
Electrolytes	9.10					35.00							12.00		4.70		3.40				
Throat Culture	10.00					12.00					7.00				5.60		10.80				
Hepatitis Associated Antigen	5.00																11.25				
Australian Antigen						22.00			6.00					12.50							
Iron	5.25	5.00	6.50				7.00			7.50		7.50			4.00		4.50				
IBC	5.95	5.00	6.50			20.50	8.00		16.00	2.50		2.50	20.00	13.00	4.00		7.20		13.00		
VDRL						9.00			8.00		5.00					4.00	2.70				
RPR						6.72								3.00	3.76	6.00					

TABLE 9

Test	High and Low Contract Costs By Selected Procedures FY 78	
	High	Low
SMA 12	24.00	5.40
SMA 18	28.00	12.95
T_3 T_4	53.00	8.00
Dilantin	25.00	8.00
Cholesterol	14.00	4.00
Triglycerides	16.50	5.00
CBC's	14.00	3.60
Pap Smears	7.00	2.35
Electrolytes	35.00	3.40
Australian Antigen	22.00	6.00
VDRL	9.00	2.70

test, and pay more because the test has to be sent to a contract laboratory; or (3) the test would not be done resulting in reduced quality of medical care. Several facilities have developed either formal or informal agreements to assist each other through loans of supplies when available. Under the current system, many of the facility laboratories are overstocked on a particular reagent, or they are using outdated reagents, or they do not have the necessary supplies to do a specific test. The study team suggests that a central purchasing mechanism be established. Each of the laboratories currently requisition their own supplies. Since most of the laboratories are small, the cost per testing kit or media unit is probably very high. High volume ordering generally reduces the cost per unit. The facility laboratories could then order their supplies from one central source. The central supply should provide optimal utilization of reagents and media and should result in a substantial cost benefit to the DMHDD.

e. The DMHDD facilities should attempt to cooperate in the provision of laboratory service. Theoretically, the regionalization system of management occurs because the "span of control" has become unmanageable. The central leader no longer has the capability to direct all of the operations which are under his authority. Regions are then established to reduce the direct supervisory responsibilities to a manageable condition. In Illinois, for the DMHDD, the regionalization concept has had a negative effect on the provision of laboratory services. Each region "takes care of its own." Even within the regions there are very few cooperative agreements. Inter-regional agreements are nonexistent, even though the facilities are sometimes located close together.

The current laboratory resources could be utilized to a higher degree if inter-facility cooperation could be achieved. The primary reason related to the study team for the lack of inter-facility agreements was "no financial incentive." The current budgetary system is so complex, or it is so misunderstood that transfer of funds for laboratory services generally is not done.

If the economic advantage of sharing laboratory services could be presented to the facilities, and if a simple transfer of funds or reimbursement mechanism is developed, the study team believes that the inter-facility cooperation will improve immediately.

f. The DMHDD facility laboratories equipment needs to be updated, improved, and an automated system needs to be developed. Most of the facility laboratories are completely manual operations. Several of the larger facilities do have some automated equipment, but even in these larger laboratories, the instrumentation is minimal. ISPI, for example, has a policy which requires an 18-test chemistry profile on all new admissions. Each of these 18 tests are performed manually in the laboratory. In 1978, ISPI had 1,127 admissions which resulted in 20,286 individual manual chemistry tests. This is a large number of tests to be performed manually. There is automated equipment available on the market which would reduce the time required to conduct these profiles to a very short period. The price range for this equipment is extremely broad, depending on the complexity and the speed of the specific instrument. With the current workload at ISPI, it would be economically feasible to consider only the less sophisticated, semi-automated, less expensive equipment, because there are only approximately five specimens on the average to be tested each day. Hundreds of specimens can be run on the more sophisticated, completely automated, and thus, expensive equipment.

The study team collected data from each of the facility laboratories on the availability of automated equipment. Several of the laboratories do have some automation, for example, Madden, Elgin, and Chicago-Read. But, there is so little investment in equipment throughout the DMHDD laboratory system that available equipment will not have an impact on the recommendations of this study. The study team believes that most of the facility laboratories provide a needed service and that some type of limited testing should and can be provided in an effective and efficient way.

g. The Department needs to have a coordinator of laboratory services for the DMHDD facilities. At some point in the past, DMHDD did have a laboratory coordinator. He worked with the laboratories in such areas as equipment selection, technical consultation, arranging vacation and leave coverage, and other problems that occurred. The position no longer exists. Consequently, the laboratories are developing and functioning independently. The result is an extreme variation in approaches to providing laboratory services. The lack of uniform data in the existing Management Cost System makes it difficult to evaluate the laboratory operations. However, the cost per test at the facility laboratories ranged from $1.16 per test to $6.77 per test in 1978. Cost per test at each facility for those tests obtained through contracts ranged from $6.06 per test to $22.72 per test.

Items a. through f. of this report have dealt with needs and problems in the DMHDD laboratory system. Supplies, quality control, inter-facility cooperation, cost, and automation are all areas where a laboratory coordinator would be of assistance. The laboratory coordinator would also be in a position to provide technical consultation and arrange for training for the DMHDD laboratory personnel. He could establish a valid workload and cost reporting system. The study team believes that a laboratory coordinator will help solve the current problems and will provide a focus for future problem solving in the DMHDD laboratory system.

B. Phase II: DPH

1. Description of Laboratory Services

The Department of Public Health administers preventive and regulatory programs to protect and improve the health of all Illinois citizens. Major programs include prevention of communicable and chronic disease, protection of women and children from the health hazards associated with child bearing and early child development, provision of emergency medical services, promotion of environmental health, and coordination of statewide health planning. The Department of Public Health's laboratory program is operated by the Division of Laboratories.

The Division provides laboratory services to Department of Public Health programs on a direct service basis. They are provided to other State agencies, State and local law enforcement agencies, local health departments, clinical laboratories, environmental laboratories, and private physicians on either a direct service or reference service basis. Laboratory tests are performed in the areas of bacteriology, parasitology, mycology, serology, virology, environmental microbiology and chemistry (water, milk, and food), and toxicology. NOTE: Toxicology service is provided only to law enforcement, local, State, and Federal agencies. Tests to detect phenylketonuria and hypothyroidism in newborn infants are also performed. In addition to performing tests, the Division provides consultation and offers training. It also monitors test performance by local clinical and environmental laboratories. It administers the State Clinical Laboratory and Blood Bank Licensure Act and monitors test performance by local, clinical and environmental laboratories.

Included in the Division's responsibilities is the Department's Arbovirus Surveillance Program, an activity designed to provide early warning of potential outbreaks of St. Louis Encephalitis or other encephalitic diseases caused by arthropod borne viruses.

Illinois Revised Statutes, 1977, contain enabling legislation for (a) Public Health Laboratory services in Ch. 111½, Sec. 22, Ch. 127, Sec. 55.09 and (b) Toxicology Laboratory services in Ch. 31, Sec. 10, Para. (e) and Ch. 111½, Sec's. 201 to 202.

The Division of Laboratories currently operates three separate facilities. The Central Laboratory is located in Chicago with a large branch laboratory in Springfield, and a much smaller branch laboratory in Carbondale. Tables 10 through 14 and Figures 2 through 5 provide the basic quantitative data for these sites.

The Chicago site is the largest of the laboratories. It is housed in a modern, multi-level building. The space appears to be very adequate for its current use, but there is little or no room for expansion of services. The laboratory provides a very broad range of laboratory testing in support of public health programs carried out throughout the State. They perform tests in bacteriology,

TABLE 10

Laboratory Workload, 1976-1979, Division of Laboratories
Chicago, Springfield, Carbondale

Facility	FISCAL YEAR							
	1976		1977		1978		1979	
	Number Specimens	Number Tests	Number Specimens	Number Tests	Number Specimens	Number Tests	Number Specimens	Number Tests
Chicago	197,181	329,883	190,518	317,627	171,172	299,817	171,379	307,312
Springfield	196,682	246,593	197,455	248,114	200,602	251,028	193,821	241,880
Carbondale	80,967	90,292	80,685	90,071	49,334	56,751	43,225	50,681
Total	474,830	666,768	468,658	655,812	421,108	607,596	408,425	599,873

TABLE 11

Expenditures, 1976-1979, Division of Laboratories

Object	FY 1976	FY 1977(1)	FY 1978	Estimated FY 1979 General	Estimated FY 1979 PKU	Estimated FY 1979 Total
Personal Services	1,767,284	1,865,692	1,965,700	1,869,400	81,900	1,951,300
Retirement	121,361	125,090	152,500	145,200	6,500	151,700
Social Security	55,066	89,060	98,300	83,000	5,300	88,300
Group Insurance	39,715	35,210	92,800	86,500		86,500
Contractual Services	94,393	127,200	140,400	136,100	12,500	148,500
Travel	15,334	39,900	20,300	25,550	700	26,250
Commodities	251,194	254,228	298,400	285,100	16,200	301,300
Printing	15,000	24,200	10,200	10,300	16,000	26,300
Equipment	47,157	32,800	43,000	175,000	66,000	241,000
Telecommunications	24,000	26,900	24,900	28,100	1,200	29,300
Operation of Automotive Equipment	4,000	3,400	1,100	2,200		2,200
TOTAL	2,434,504	2,623,680	2,847,600	2,846,450	206,300	3,052,750

(1) Includes implied consent and substance impairment program funds.

TABLE 12

Types of Services Available Through the Division of Laboratories
Chicago, Springfield, Carbondale

Name of Test	Facility		
	Chicago	Springfield	Carbondale
CLINICAL CHEMISTRY	--	--	--
DIAGNOSTIC MICROBIOLOGY			
Bacteriology (Referred Cultures)	X	--	--
Culture, blood	--	--	--
Culture, cervical	X	X	X
Culture, throat	X	X	X
Culture, sputum	X	X	--
Culture, stool	X	X	X
Culture, urine	X	X	X
Drug Sensitivity	X	--	--
Smear, A.F.B.	X	X	--
Smear, G.C.	X	X	X
Smear, Misc. organisms	X	X	X
Special Bacteriological Procedures*	X	--	--
Mycology	X	--	--
Direct exams (+ stains)	X	--	--
Culture	X	--	--

X = Tests Performed.

-- = Tests Not Available.

*Includes Staphylococcus phage typing, Salmonella serotyping, Streptococcus grouping.

(continued)

TABLE 12 (cont'd)

Types of Services Available Through the Division of Laboratories
Chicago, Springfield, Carbondale

Name of Test	Facility		
	Chicago	Springfield	Carbondale
DIAGNOSTIC MICROBIOLOGY (cont'd)			
Parasitology			
Direct exams, stool	X	--	--
Direct exams, blood	X	--	--
Pinworm slide	X	--	--
Virology			
Rabies specimen	X	X	X
Other viral isolations	X	--	--
ENVIRONMENTAL MICROBIOLOGY			
Dairy			
Chemistry	X	X	X
Microbiology	X	X	X
Food			
Chemistry	X	X	X(1)
Microbiology	X	X	X(1)
Water			
Chemistry	X	X	X
Microbiology	X	X	X
METABOLIC DISEASES SCREEN			
PKU - T4	X	--	--

X = Tests Performed.

-- = Tests Not Available.

(1) = Limited.

(continued)

TABLE 12 (cont'd)

Types of Services Available Through the Division of Laboratories
Chicago, Springfield, Carbondale

Name of Test	Facility		
	Chicago	Springfield	Carbondale
SEROLOGY			
Syphilis serology	X	X	--
Other bacterial serology	X	X	--
Fungal serology	X	--	--
Parasitic serology	X	--	--
Viral and rickettsial	X	--	--
Infectious mono	X	X	--
TOXICOLOGY			
Physical Samples			
Pesticides	X	X	--
Drugs & narcotics	X	--	--
Paint - lead	--	X	--
Foodstuffs	X	X	--
Biological Samples**			
Blood	X	X	--
Urine	X	X	--
Body tissues	X	X	--
Body fluids	X	--	--

X = Tests Performed.

-- = Tests Not Available.

**Includes exams for alcohol, other volatiles, drugs and narcotics, lead, other metallic poisons, other poisons, insecticides, etc.

TABLE 13

Laboratory Personnel, by Classification, Division of Laboratories
Chicago, Springfield, Carbondale

Position Classification	# of Employees at Facility		
	Chicago	Springfield	Carbondale
Chief Public Health Microbiologist	1	-	-
Microbiologist V	3	-	1
Microbiologist IV	7	2	-
Microbiologist III	8	3	1
Microbiologist II	9	-	1
Microbiologist I	12	4	1
Chemist IV	2	1	-
Chemist III	4	-	-
Chemist II	5	2	-
Chemist I	2	2	-
Biologist I	2	-	-
Chief Toxicologist	1	-	-
Assistant Chief Toxicologist	1	-	-
Biochemist II	1	-	-
Public Health Laboratory Evaluator	3	4	-
Other Professional/Administrative	3	1	-
Laboratory Technician	10	6	-
Laboratory Helper	8	6	1
Laboratory Equipment Specialist	1	-	-
Secretarial/Clerical	17	8	1
Storekeeper	3	1	-
Life Science Career Trainee	4	1	-
TOTALS	107	41	6

TABLE 14

Specimens and Examinations
Processed by Division of Laboratories*
By Major Category, FY 1978

	Specimens	Examinations
Serology	123,121	187,831
Parasitology	960	1,266
Mycology	1,450	1,944
Bacteriology	200,536	209,277
Virology**	4,798	12,159
Metabolic Screening***	65,648	131,296
Toxicology		
Forensic	5,604	34,091
Environmental	1,540	1,540
Clinical	6,062	6,062

*Chicago, Springfield, Carbondale

**Does not include mosquito pools and bird bloods for arbovirus surveillance.

***Data is for period 7/1/79 - 2/29/80. This is a new program which is expanding rapidly.

FIGURE 2

Number of Specimens Received in the Division of Laboratories, by County of Origin and by Laboratory Facility, FY 1979 (estimated)

FIGURE 3

Number of Diagnostic Microbiology Specimens (Isolation and Identification) Received in the Division of Laboratories, by County of Origin and Laboratory Facility, FY 1979 (Estimated)

FIGURE 4

Number of Environmental Microbiology (Water) Samples Received in the Division of Laboratories, by County of Origin and by Laboratory Facility, FY 1979 (estimated)

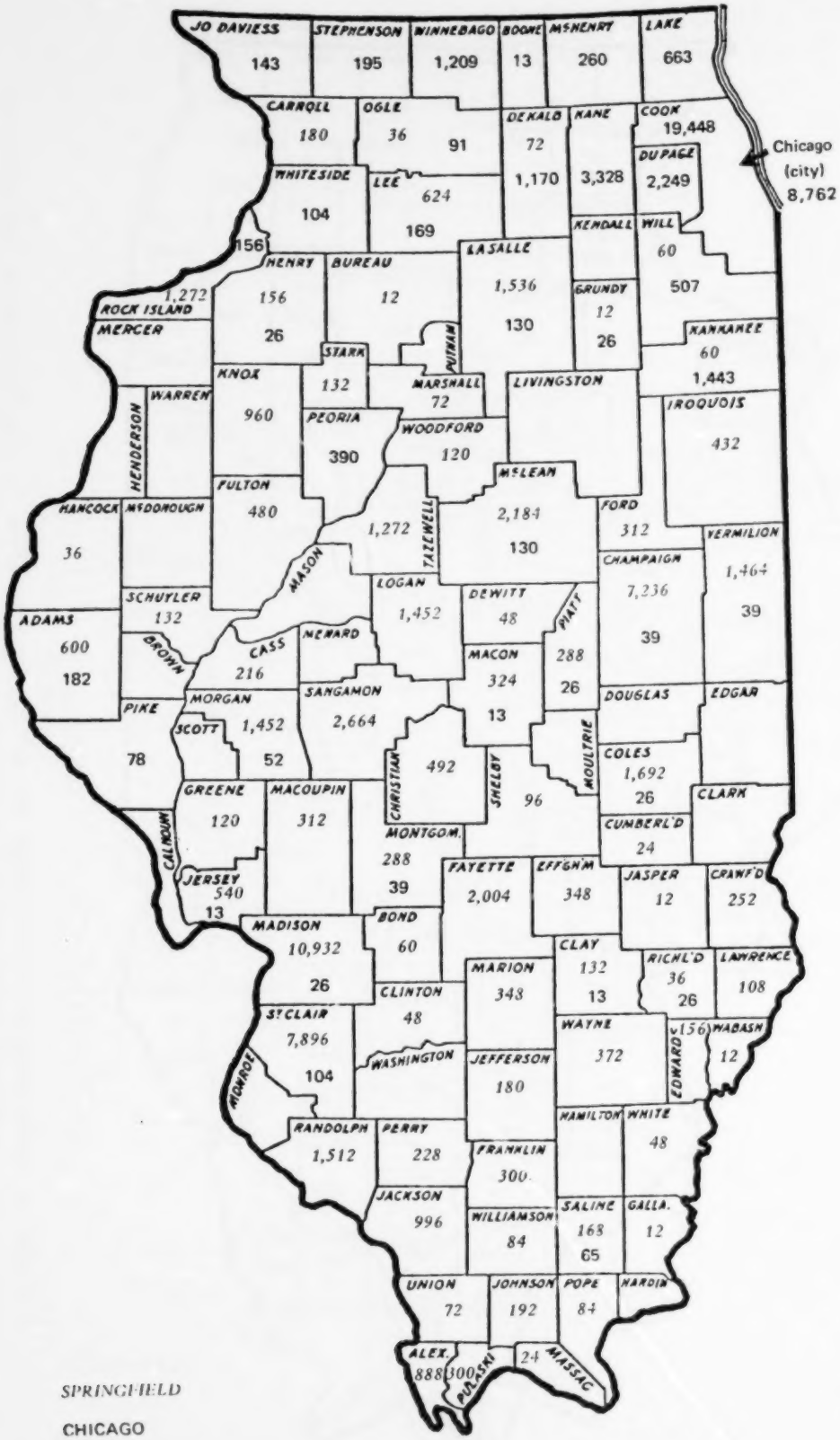

FIGURE 5

Number of Syphilis Serology Specimens Received in the Division of Laboratories, by County of Origin and Laboratory Facility, FY 1979 (estimated)

parasitology, virology, mycology, and serology. In addition, the laboratory performs PKU and T4 tests for the metabolic diseases screening of newborn infants. The laboratory also has an extensive environmental testing program and toxicology analyses. Figure 2 indicates by county the source of specimens received by the Division of Laboratories, Illinois Department of Public Health. The Figure demonstrates quite readily that the Chicago facility serves the entire State. There are 107 people employed in the Chicago facility (Table 13). The laboratory employees include microbiologists, chemists, biologists, toxicologists, and other professional staff. There are also support personnel such as the laboratory technicians, the laboratory helpers, and those in secretarial/clerical positions. Table 10 indicates the number of specimens and tests performed at the Chicago facility. The number of specimens processed by the laboratory has decreased by 13% from the period 1976 to 1979. The actual number of tests, however, has shown a decrease of only 7%.

The Springfield facility is the second largest of the three facilities. It is housed in an old building which is completely inadequate and unsuited to laboratory use. The space available is too small and limits the current level of services being provided from that facility. We understand that agreement has recently been reached whereby the Springfield Public Health Laboratory will be relocated and will share a new laboratory facility with the Illinois Department of Environmental Protection. The Springfield facility offers a wide variety of public health laboratory testing. They offer a complete line of bacteriology, syphilis serology, a full range of environmental testing (microbiology, chemistry, and radiochemistry), a limited range of toxicology, and rabies examinations. Figure 2, the source of specimens by county, demonstrates that the Springfield facility also provides services on a Statewide level, receiving specimens from each of the Illinois counties. There are 41 employees at the Springfield facility, generally of the same disciplines which are found in Chicago. The Springfield facility conducted 241,880 tests on 193,821 specimens in 1979. Their workload has remained relatively constant for the period 1976 through 1979.

The Carbondale facility is located in an old building near the Southern Illinois University campus. This laboratory's activities were rather drastically curtailed in the very recent past, and thus, the facility appears to be adequate for the limited services being conducted there at this time. Services that were deleted were shifted to the Springfield and Chicago laboratories. The Carbondale facility serves as a regional laboratory for limited testing in southern Illinois. They perform basic bacteriology cultures and smears, rabies examinations, and limited environmental microbiology. The regional nature of the Carbondale facility is demonstrated by Figure 2, where it is noted that all of the specimens received in the Carbondale facility originate from the counties in southern Illinois. This laboratory employs only six people, four of whom are microbiologists. As previously indicated, the services of this laboratory have been curtailed rather drastically with the number of specimens and number of tests decreasing by 47% and 44% respectively. Plans are being made to begin restoring deleted services.

SUMMARY

The combination of these three facilities represents a highly developed State Public Health Laboratory system providing laboratory testing in all phases of bacteriology, mycology, parasitology, virology, environmental microbiology, serology, and toxicology. They provide diagnostic testing services to every county within the State of Illinois. The Division of Laboratories employs 154 individuals in positions ranging from the highly technical professional to the support and clerical services. In 1979, the three facilities conducted approximately 600,000 tests on slightly over 400,000 specimens. The expenditures for the three facilities combined have increased about 25% for the period 1976 - 1979 (Table 11). However, it should be noted that of the $618,000 increase in expenditure, $206,000 were designated for a new PKU testing program. Thus, the actual expenditure level of the laboratory has increased only 17% during the period 1976 to 1979, or less than 6% per year. Figures 3, 4, and 5 indicate that the laboratories also serve a regional function. For example, in the area of

environmental microbiology, Figure 4, the Chicago facility serves the northern counties; the Springfield facility, the central counties; and the Carbondale facility, the southern counties. There are very few exceptions to this and generally the exceptions can be explained either through ease of transportation or sophistication or complexity of tests.

2. Problems and Needs

a. The Department of Public Health, Division of Laboratories, needs to develop a strong central image.

Interviews conducted with Division of Laboratories personnel, Public Health Department program personnel, and local health department representatives, strongly indicated that there is no perceived central laboratory serving public health in Illinois. Laboratory supervisory personnel generally had their primary identity with the section or branch with which they were associated. The laboratory supervisors saw themselves as "belonging to" the Carbondale Branch Laboratory or to the Springfield Branch Laboratory or to the Microbiology Section or to the Virus Section. This conception of separation was also evident at the State Public Health Department program level and the local health department level. Invariably, these health representatives identified the source of their laboratory support as "the Carbondale laboratory," or "the Springfield laboratory," or "the laboratory in Chicago." Some individuals regarded the laboratory in Chicago as the central laboratory and the Springfield laboratory and the Carbondale laboratory as regional laboratories. Others stated that the Springfield laboratory was the central laboratory, the Chicago branch was a "specialty" laboratory, and the Carbondale facility was a regional laboratory.

The confusion that exists regarding the laboratories and their services reduces the overall effectiveness of the Division of Laboratories. The local health department personnel do not have a clear picture of what tests can be done at which of the Division's three laboratories. For example, rubella serologies for diagnostic purposes are available through the main laboratory in Chicago.

However, because the tests are not available through Springfield or Carbondale laboratories, health department personnel will often not submit the specimens because it is not available through "their" laboratory.

b. The Division of Laboratories needs a Laboratory Manual which describes the services of the Division.

The need for this manual was evident in every health department which we visited. The local health departments had inadequate information regarding availability of testing services, location where services were available, proper methods of specimen collection and specimen shipment requirements.

The laboratory service manual needs to include: a complete listing of testing services available; county by county designation describing where the specimens should be sent; a step by step description of proper specimen collection techniques; and, instructions on specimen shipment.

Other items which should be included in the laboratory manual are: (1) availability and schedule of laboratory training; (2) availability and source of laboratory consultations; (3) availability of quality assurance activities such as proficiency testing programs and on-site inspections; and (4) descriptions of the other resources in the Division of Laboratories, such as laboratory certification, special surveillance projects and public relations activities.

The distribution of this manual should be to State and regional health department personnel, city and county health departments, hospital laboratories, private physicians and clinics, and other agencies which conduct public health related programs.

Services provided by the Division of Laboratories are generally in response to needs generated by public health programs. Because the public health programs are constantly changing, the services available through the Division of Laboratories must also change. Thus, the manual development should allow for periodic updating. One way to handle this is to use a "loose leaf" approach, and then on a regular or "as needed" basis, new pages can be provided to the manual owners so that they can add new information or delete obsolete instructions.

c. The Division of Laboratories needs to increase its capacity for handling a greater volume of tests.

The major difficulty related to the study team by the local and regional health units was the limitation placed upon their programs by the unavailability of laboratory support. In just about every instance, health department personnel told of cases where the laboratory restricted the number of samples which could be submitted. Although the problem included public health clinical specimens, i.e., rubella serologies, it appeared to be more severe for environmental samples such as water chemistries and food bacteriology. Table 10 showed that the number of specimens and the number of tests of the Division of Laboratories has decreased slightly during the most recent year, even though our interviews suggested that the current demand for laboratory services is not being met. The ability of the Division of Laboratories to adequately meet the needs is dependent upon the availability of laboratory personnel, space and equipment. The Springfield Branch Laboratory, for example, is so overcrowded than even if personnel and equipment were available, they could not be housed properly.

The Division of Laboratories is severely overtaxed in many of its operations. The loss of one chemist in the Springfield laboratory resulted in almost a complete loss of laboratory support for the Nuclear Division of Environmental Health. The solution to this problem is more people, more space, and more and better equipment. Sections III and IV of Attachment II, should provide sufficient data to establish a priority list for additional resources. It is hoped that the State of Illinois would then provide the needed financial support to convert the priority list of needed resources into actual people, space, and equipment.

d. The Division of Laboratories needs to expand the range of testing services beyond that which is currently available.

Sections II, III and IV of Attachment II of this report denote those tests which are needed but are not available through the Division of Laboratories. As previously mentioned, public health is constantly changing, creating needs for added laboratory support.

Legionnaire's Disease and the Federal Safe Drinking Water Act are prime examples of recent changes which affect the laboratory. Some of these needs for new laboratory services, BOD's, pesticides, hepatitis A and B, are identifiable now. Other needs will occur in the future.

The Division of Laboratories should undertake two activities. First, utilizing the data in this report and the experiences of the supervisory personnel of the laboratory, a list of needed tests should be developed and ranked according to the severity of need. Those tests with the highest priority should be added now. Other tests should be added at later dates when resources become available. Determining when to add these other tests is the second of the activities which should be undertaken by the Division of Laboratories. Because a health department wants a particular test to be available is not sufficient justification for the test to be added. Other factors include, alternate sources for obtaining the test, number of tests to be conducted, usefulness of the test and set-up and operating costs. On a regular basis, the Division of Laboratories should query the public health providers to determine what additional tests are being requested. Their requests should then be compared to the other criteria which were listed above. The decision to add a specific test would then depend on the results of this quantifiable comparison. This process should also be applied to the decision of whether or not to delete a specific test.

e. <u>The Division of Laboratories needs to improve its reporting procedures</u>.

A common complaint voiced to the study team was the long time lags in getting back laboratory test results. Part of the difficulty can be explained by the inadequate number of personnel, space, and equipment, which was pointed out in the third and fourth recommendations of this report. If sufficient resources are not available to do the required number of tests on a timely basis, then the testing must be delayed. Testing delays obviously mean reporting delays. The delayed testing aspect of the reporting problem can only be solved when adequate laboratory personnel are available.

However, there are other aspects of the reporting delay problem. First, there does not appear to be a standard system for reporting laboratory results. In some instances, it was reported to the study team that laboratory reports were sent through the public health regional office and then routed from there to the original submitter. In other cases, it was reported that the laboratory report was returned to the original submitter, or local health department, and that the regional office simultaneously received its copy. The extra handling required to report a test result through an office would result in delayed reporting. The Division of Laboratories should study the needs for test results of the various state, regional, and local health programs, and establish a reporting system which is responsible to the priority needs (i.e., disease outbreaks, illnesses, hazardous spills), but still provides data for the lower priority needs (i.e., surveillance).

Second, there does not appear to be an effective system which allows laboratory users to check on the status of a particular testing request. Regardless of how many precautions are taken, some specimens will be lost, damaged, or in some other way unsatisfactory. Some local health departments maintain a file indicating when a specimen is shipped, and thus, they have a rough idea when the test results should be reported. If the report is not forthcoming, they attempt to find out the status of that laboratory report. Their search, as reported to the study team, is generally with "whoever answers the phone." The Division of Laboratories should establish an internal system to identify the current status of a request in each of the three facilities. Such a system would be of great benefit to the user of the laboratory. It could also benefit the laboratory if valuable professional and technical time is currently being used in "searching for specimens."

The third system which should be developed by the Division of Laboratories is a rapid reporting of significant test findings. These significant test findings should include all positives for disease diagnosis, negatives when clinical symptoms or illness is evident, and other emergency type testing when severe or threaten-

ing conditions exist. These tests would be treated as if they were "stat" requests in a hospital laboratory. The Division of Laboratories, working with the appropriate health department personnel, should identify the conditions which constitute a "stat" request. These developed criteria would then be distributed to the users of the laboratory so that they could then request and be assured of rapid service for special and emergency situations.

f. The Division of Laboratories needs to provide more training, consultation, and quality assurance programs to the city and county health department personnel.

Local health departments provide much of the basic laboratory testing needed for their programs. There are two services which the Division of Laboratories needs to expand. First, some local health departments have their own laboratories. They range in size from the City of Chicago Health Department laboratory, (which is larger than the Division of Laboratories), to the one person operation in the Seven County Health Department. These laboratories generally requested an expanded training and consultation effort from the Division of Laboratories. They specifically requested an expanded quality assurance program. We are aware that the Division of Laboratories is currently working very hard to improve their relationship and service to the local health departments. Thus, we include this recommendation only to show our support of this needed activity.

The second area of need in the local health departments concerns a different source of laboratory services. In most local health departments, nurses are required to do fundamental clinical laboratory analyses. These include, hematocrits, hemoglobins, urinalysis, pregnancy tests, occult blood, GC smears, and sometimes even GC cultures. These nurses generally described their laboratory training as inadequate, i.e., "The sales representative taught us," or "The nursing supervisor taught me." Unfortunately, the nurses generally have not had the opportunity to learn adequate laboratory techniques. They have very limited knowledge of instrument calibra-

tion, standards and controls and standard methodologies. The Division of Laboratories should establish a basic laboratory training course for health department nurses. To insure continued laboratory testing accuracy, the Division of Laboratories should develop and conduct an on-going proficiency testing program for the basic procedures conducted by these nurses.

g. Interviews with Division of Laboratories Section Chiefs.

The study team interviewed each of the Section Chiefs in the Division of Laboratories to determine what problems, if any, currently existed and to get an indication of trends in laboratory services.

Toxicology--The primary problem related to the study team regarded the transportation of specimens; on occasion, some specimens are lost in the mail. One additional service identified as being needed was screening for trace metals to support environmental programs. Although some metal analyses are being done in Springfield, they are currently on a limited scale. The toxicologists also foresaw a need for a Statewide pathology system for forensic pathology services. The toxicology program is primarily directed toward support of law enforcement agencies, both local and State. Some therapeutic monitoring for mental health centers and drug screening for correctional institutions is provided. Support of local health departments is minimal.

Arbovirology--The Arbovirus Surveillance program is basically not a bench laboratory operation. Most of their laboratory analyses are done by microbiologists in the Virology Section, Division of Laboratories. The major effort of the arbovirology staff is in the area of surveillance and epidemiology.

Virology--The Virology Section identified a current need for equipment and sees the need for additional testing. The additional work indicated includes chlamydial analyses for newborns, rubella analyses on a Statewide basis, and vaccine surveillance.

Microbiology--At the time of the DPH study, the Microbiology Section had four vacancies which limited their activities. They also have experienced delays in mail service and would like to see

a Statewide courier system put into operation. In order to improve their service they would like to phone out positive results. No problems were stated regarding the amount of space or equipment. Because of extreme fluctuations in workload, personnel and budget, the Microbiology Section has had a reluctance to encourage their users to submit specimens. This reluctance, they feel, has resulted in many potential clients not knowing what services are available or where services can be obtained. New tests identified included the expansion of fungal serology and other serologies such as Legionnaire's Disease and amebiasis. They would like to see the premarital syphilis serology program deemphasized and the testing transferred to the many private laboratories. Testing performed in the Microbiology Section is in the support of some public aid patients, mental health, local health departments, MD's, and other State institutions.

Springfield Branch Laboratory--The Springfield laboratory provides a broad range of services with emphasis on environmental testing. The major problems identified were hiring and retaining qualified personnel, poor facilities, and inadequate equipment. Because of these limitations, additional work cannot be handled at this facility. If space, personnel and funding were available, new testing needed would include environmental work such as BOD's and alphatoxins. (It is probable that the newly planned facility will alleviate some of these problems.)

Carbondale Branch Laboratory--The Carbondale Branch Laboratory is a very limited operation. Because the workload has been so drastically curtailed, the space and number of people was reported as adequate. However, any expansion in services would require additional people.

C. Phase III: DPA

1. Description of Laboratory Services

The laboratory services discussed in this section are only those laboratory services included in the Federal Medicaid program. The Medicaid program, Title XIX of the Social Security Act, is administered

in Illinois by the Department of Public Aid (DPA), as a part of their Medical Assistance program.

The basic mission of the Illinois Medical Assistance program is to "provide access to necessary medical care, of the same scope and quality as is available to the general public, for individuals unable to afford such care."

Approximately 50 percent of the costs of the Medical Assistance program are paid by the State and 50 percent by the Federal government. Laboratory services are one of a number of "mandatory services" that every state Medicaid program must offer in order to receive Federal financial assistance. Some of the Medical Assistance program laboratory services are accomplished in hospitals, nursing homes, clinics, etc., but for purposes of this report, all DPA laboratory services will be those performed by certified independent clinical laboratories who are enrolled to participate in the Medical Assistance program.

Unlike the other State agencies included in this study, DMHDD and DPH, the DPA has no agency laboratories. For DPH and DMHDD, we were able to visit, study and describe the extent of their in-house laboratory facilities. The DPA relies on certified independent clinical laboratories. The DPA, as a monitoring and funding agency, administers the program through arrangements with the laboratories. So there is no agency laboratory system to describe, but rather a diverse network of private laboratories throughout the State. Therefore, a description of the DPA laboratory services which can be directly compared to the DPH and DMHDD laboratory services is extremely difficult. This section, then, is intended to provide an understanding of the scope of the certified independent clinical laboratory program with particular emphasis on the highest volume tests purchased by the DPA.

The following tables, taken from our Phase III report (Attachment III), provide a good picture of the laboratory program.

Table 15 shows figures taken from the Illinois DPA Medical Assistance Annual Report for Fiscal Years 1976-1977-1978. They are presented to show the magnitude of the Medical Assistance and Laboratory programs.

TABLE 15

Overview of Illinois Medical Assistance Program, 1976-1978

	FY 76	FY 77	FY 78
Medical Assistance Program			
Average No. of Medicaid Eligibles*	1,087,549	1,062,722	1,018,224
Participating Providers			
1. Physicians	13,837	14,611	14,863
2. Laboratories	172	182	180
Certified Independent Clinical Laboratory Services Utilization			
Total expenditures ($ millions)	$8.4	$8.5	$7.4
Total # of claims	517,123	517,431	506,082
Average payment per claim	$16.15	$16.44	$14.58
Average annual # of claims per Medicaid eligible	.47549	.48689	.49702
Average annual expenditure per Medicaid eligible	$7.68	$8.00	$7.25

*This refers to the number of clients who are eligible to receive medical assistance and who are potential users of laboratory services.

TABLE 16

Illinois Department of Public Aid
Tests (Performed by Certified Independent Laboratories)
with Payments over $100,000
Calendar Year 1978

Procedure	Total Payment
Chemistry Profiles	$1,206,216
Blood-Count Complete Includes RBC, WBC, HGB, Differential	691,256
Routine Urinalysis, Complete	505,570
Thyroid Tri-Iodo-Thyronine, T-3, or Thyroxine, T-4, Uptake, Radioactive	501,990
Blood-Count Complete Automated, Cell Counts, Hematocrit, Hemoglobin and Indices	489,711
Cytopathology Smears as Papanicolaou Type, Genital Source	384,826
Culture Definitive Including Sensitivity Study, for Specific Microorganisms, with Isolation of Organism, Sources Other than Blood	283,154
Chorionic-Gonadotropin Pregnancy Test Blood or Urine, Immunologic Technique, Qualitative	240,700
Other Chemistry Profiles	223,248
Sugar Glucose Blood	203,004
Culture Screening for Organism, Including Sensitivity Study, Sources Other than Blood	166,113
Sickling of Red Blood Cells	161,616
Sedimentation Rate, ESR	121,021
Iron Serum Binding Capacity, Chemical	117,711
Cytopathology Smears with Review Including Hormonal Evaluation, Cytogram, Maturation Index, Estrogen Activity, etc.	116,666
Thyroid Thyroxine T-4, Murphy-Pattee or Nakajima	109,158
Throat Culture	103,284

TABLE 17

ILLINOIS DEPARTMENT OF PUBLIC AID

List of Highest Paid Certified Independent Clinical Laboratories
(Laboratories Paid $10,000 or More)
Calendar Year 1978

Laboratory	County	Charges	Payments
1	Cook	$ 1,222,611	$ 979,084
2	Cook	996,592	727,768
3	Cook	738,249	546,867
4	Cook	304,164	295,752
5	Cook	343,463	285,840
6	Cook	387,070	261,246
7	Cook	301,978	253,027
8	Cook	303,070	247,533
9	Cook	304,166	235,932
10	Cook	305,853	223,909
11	Cook	266,730	205,014
12	Cook	215,056	172,374
13	Cook	239,584	158,367
14	Cook	198,874	154,457
15	Cook	221,960	152,948
16	Cook	192,359	150,852
17	Cook	200,368	149,381
18	Cook	218,942	144,926
19	Cook	370,448	139,821
20	Cook	191,781	138,978
21	Cook	185,060	136,747
22	Cook	189,504	131,382
23	Cook	135,881	105,189
24	Cook	115,637	87,788
25	DuPage	125,628	86,886
26	Cook	128,291	81,058
27	Cook	120,065	80,814
28	Cook	106,036	78,224
29	Cook	98,183	78,156
30	Cook	81,010	74,902
31	Cook	137,967	74,787
32	Cook	99,459	70,859
33	Cook	86,276	66,547
34	Out of State	85,708	51,982
35	Out of State	74,433	51,940

(continued)

TABLE 17 (cont'd)

Laboratory	County	Charges	Payments
36	Cook	$ 94,814	$ 47,558
37	Cook	47,025	47,005
38	Cook	57,677	45,644
39	Cook	55,276	42,746
40	St. Clair	61,361	42,092
41	Cook	47,915	40,096
42	Cook	77,979	37,095
43	Cook	37,147	33,555
44	Out of State	39,904	30,057
45	Cook	37,600	30,029
46	Cook	46,034	29,868
47	Out of State	33,495	28,568
48	Cook	30,458	23,185
49	Sangamon	26,117	22,877
50	Cook	28,863	22,101
51	Cook	36,581	21,904
52	Out of State	27,319	21,770
53	Cook	44,141	20,838
54	Cook	24,306	20,714
55	Cook	25,091	19,690
56	Cook	30,873	19,520
57	St. Clair	24,871	19,364
58	Cook	29,010	19,350
59	Lake	29,989	19,275
60	Cook	25,408	17,869
61	Cook	23,494	17,318
62	Cook	33,800	16,999
63	Cook	26,116	15,503
64	Cook	22,383	14,680
65	Cook	18,334	14,655
66	Cook	20,295	14,148
67	Marion	18,967	12,758
68	Will	22,955	12,398
69	Cook	13,567	10,805
70	Cook	17,662	10,481
71	Cook	11,780	10,263

Table 18

Illinois Department of Public Aid
COUNTY BY COUNTY SUMMARY OF CHARGES BY AND PAYMENTS TO
CERTIFIED INDEPENDENT CLINICAL LABORATORIES
(Based on Bills Paid January 1978 thru December 1978)

County	Charges	Payments	Percent of Charges Paid
GRAND TOTAL TAB	$10,125,246.63	$7,813,514.58	77.2
OUT-OF-STATE TAB	293,222.43	212,563.88	72.5
COOK COUNTY TAB	9,395,652.46	7,292,194.01	77.6
DOWNSTATE TAB	436,371.74	308,756.69	70.8
Champaign	5,157.00	3,620.50	70.2
DeKalb	2,726.50	2,359.00	86.5
DuPage	126,753.53	90,227.03	71.2
Kane	7,468.75	4,501.10	60.3
Kankakee	31,102.76	21,007.26	67.5
Lake	34,879.90	25,107.60	72.0
LaSalle	2,081.00	1,322.00	63.5
Macon	1,682.75	1,083.00	64.4
Madison	10,616.00	8,473.50	79.8
Marion	16,446.50	12,111.00	73.6
McHenry	22.00	15.00	68.2
McLean	19,126.20	12,575.70	65.8
Peoria	20,071.10	12,080.00	60.2
Rock Island	2,252.50	1,647.50	73.1
Saline	8,767.75	5,165.75	58.9
Sangamon	30,964.25	25,743.00	83.1
St. Clair	90,795.25	66,359.25	73.1
Stephenson	756.00	681.00	90.1
Will	21,716.00	12,208.00	56.2
Winnebago	2,986.00	2,469.50	82.7

FIGURE 6
Illinois Department of Public Aid
County by County Payments/Percentages to Certified Independent Laboratories
January 1978 thru December 1978

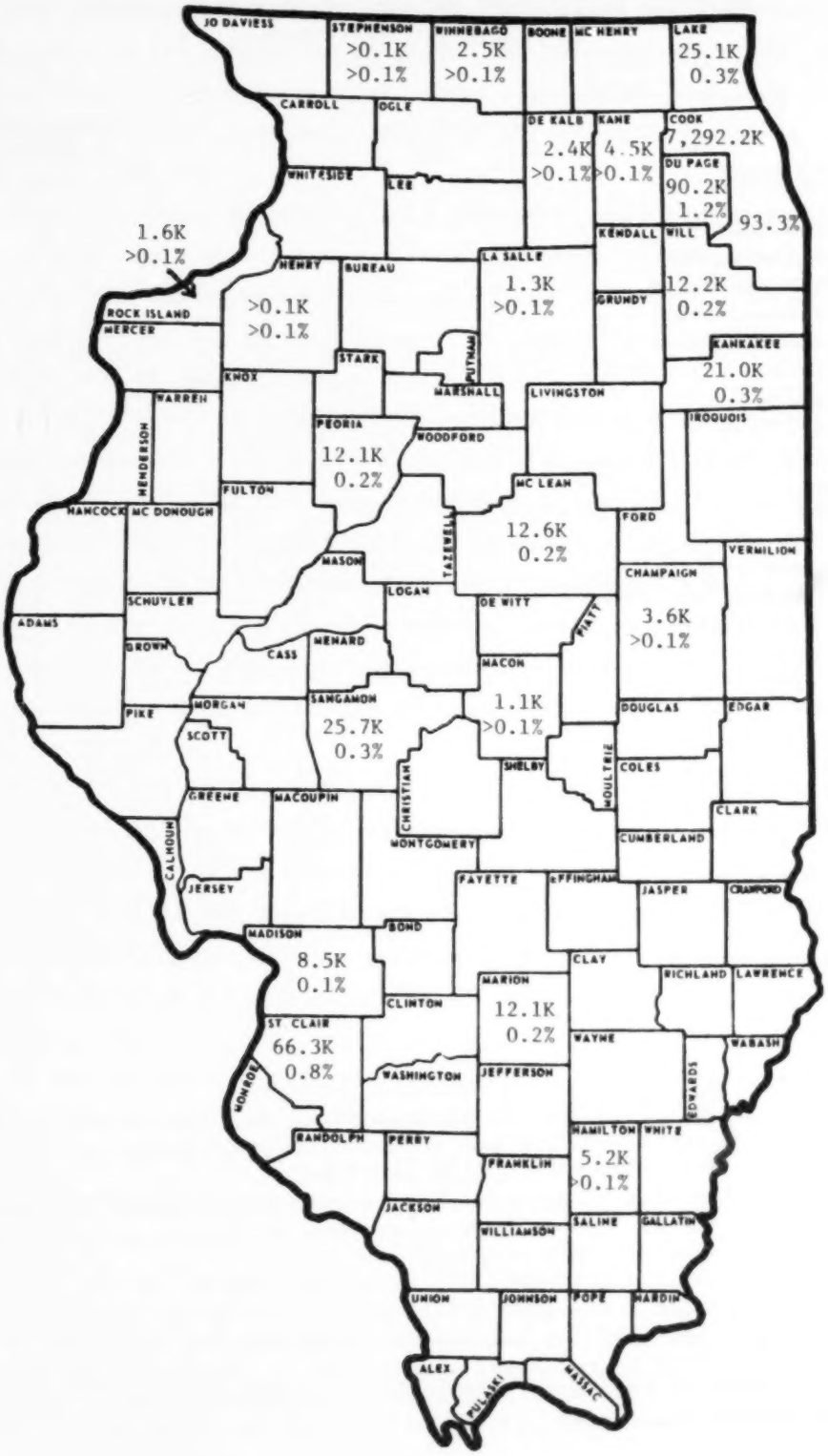

TABLE 19

LABORATORY TESTS
PROVIDED BY ILLINOIS DEPARTMENT OF PUBLIC HEALTH
TO PUBLIC AID RECIPIENTS

TEST PROCEDURE			PUBLIC HEALTH LABORATORY PROVIDING SERVICE
Agglutinations			C, S
CF - Coccidioidin			C
CF - Histoplasmosis			C
CF - Leptospirosis			C
CF - Tularemia			C, S
Heterophile			C, S
Heterophile			C, S
Rubella (Diag)		(1)	C
Rubella (Diag)		(1)	C
STS qual.		(2)	C, S
STS quan.		(2)	C, S
FTA	(3)	(2)	C, S
Toxoplasmosis (Diag)		(1)	C
Cult - Screen, not blood		(4)	CA, C, S
Cult - Definitive, not blood		(4)	CA, C, S
Phage typing			C
Serol. type			C
Cult type			C
TB sensitivity			C
Virology		(5)	C
Darkfield		(6)	-
Darkfield		(6)	-
Lead blood		(7)	S
Lead urine		(7)	S
Lead blood quan.		(7)	S
Lead urine quan.		(7)	S
CF - Psittacosis			C

(1) Diagnostic only (does not include prenatal workup).
(2) Except where supplied by local health department as: Cities of Chicago, Rockford, Peoria, Decatur-Macon County, Evanston-North Shore.
(3) Treponemal test in current use will be performed.
(4) Limited to the diagnosis of gonorrhea, tuberculosis and bacterial gastro-enteritis. (Culture for gonorrhea requires special handling. "Transgrow" bottles are available for this purpose.)
(5) Special instructions are available for virus specimens.
(6) Physician should contact the appropriate public health agency (city, county, or State regional) for services of VD advisor.
(7) Special container MUST be requested. This test is available only from Springfield. SPECIFY TEST WHEN REQUESTING CONTAINERS. Direct requests to the appropriate laboratory.

CA = Carbondale Laboratory C = Chicago Laboratory S = Springfield Laboratory

Table 16 is a listing of the laboratory tests utilized most frequently by the Public Aid program. For calendar year 1978, we have listed all tests with total annual payments of over $100,000. An analysis of this data revealed that only 17 different tests incur charges of $100,000.

Table 17 lists the highest paid laboratories (paid $50,000 or more for 1978). These are listed in descending order of dollar volume and also show the county in which the laboratory is located. As expected, the bulk of them are in Cook County. The first 23 laboratories account for over 75% of the billings.

Table 18 lists the charges and payments for 1978 by county. Cook County accounts for 93% of the total State payments. This table also shows what percent of the laboratory charges are actually paid by the State. The State of Illinois has 102 counties of which only 21 are shown on this table. Only those 21 had independent clinical laboratory charges to the Medicaid program in 1978.

Figure 6 is an Illinois County map showing the 1978 county payments by geographical location. Also included is the percentage of the total payments by county.

Table 19 lists the laboratory tests which are provided by the Public Health laboratories to Public Aid recipients without charge. The footnotes on this table are important to its understanding, because they spell out a number of exceptions. These exceptions limit the Statewide availability of many of these tests and the table, therefore, does not serve as an indication of Public Health laboratory capability to provide service to the DPA.

We can readily see from the foregoing that the DPA laboratory program is extremely large and expensive. Note also that most of the program (93.3%) is in Cook County, the Chicago area, and is done by a relatively few laboratories.

2. Problems and Needs

Prominent in our research of the DPA activities was a universal concern about the Medicaid program's seemingly limitless costs. The states we contacted, as well as the Federal agencies we talked to,

stressed their concern over spiraling Medicaid costs. Equally as extensive was the concern over the problems associated with attempts to control those costs.

This section will present what we perceived as the most significant needs of the DPA and the essential requirements of a laboratory system to meet those needs. A discussion of the problems in satisfying these needs is also included.

a. Needs

(1) Cost Reduction. The major focus of the Governor's Cost Control Committee in drafting Recommendation #518 was the reduction of laboratory costs and the costs of the DPA Medical Assistance laboratory program represent the majority of those expenses. So the predominate need for the DPA is to control and reduce costs. As previously stated, approximately 50 percent of the cost of the Medical Assistance program is funded by the State of Illinois. This is a State expense which if reduced substantially, would be a significant achievement.

(2) Production Efficiency. Automation has brought about significant changes in laboratory testing in recent years. Those tests adaptable to automation can be done at considerably less cost if done in large volumes. A centralized laboratory system such as that proposed by Recommendation #518 would allow the central laboratory to more efficiently utilize high volume computerization and by the increased efficiency reduce costs significantly.

(3) Program Control. The number of laboratories and physicians in the Medical Assistance program makes the program extremely difficult to monitor effectively. No matter how skilled the personnel or how sophisticated the utilization control system, a program of that magnitude and complexity has monumental control problems. A more centralized laboratory system would allow the State to control the program much more efficiently.

(4) Quality Assurance. Any Statewide laboratory system incorporating the Medical Assistance program must contain effective quality control mechanisms. Centralization as discussed previously would surely enhance the quality monitoring capability because the number of laboratories involved in providing services would be decreased, and thus the State's span of control would be greatly improved.

(5) Specimen Collection. The magnitude of the DPA laboratory program is such that collection of the specimens and transportation to the laboratory is both a complex and costly factor. This is especially true in Chicago. The DPA would require a cost effective and timely collection and transportation system.

b. Problems

(1) Legal. The legal problem is discussed in detail in our Phase III (Attachment III) report. In brief, it involves a statute in the Federal Medicaid regulations which guarantees patients a "freedom of choice" in the selection of medical service providers. A 1975 Federal court decision in New York City upheld the legal validity of the free-choice requirement as it related to the choice of a patient to select a laboratory of his choosing.

A proposal such as Recommendation #518 appears to be a direct violation of that statute. However, as pointed out in the Phase III report (Attachment III), a number of possibilities exist to either test the regulation or attempt to circumvent it.

(2) Political. Most of the laboratory work under consideration in Recommendation #518 is provided by independent clinical laboratories. Some of these private laboratories are doing a substantial amount of Medical Assistance program work and with very large incomes from the program (Table 17).

The New York City case (described fully in Attachment III), in which the city attempted to set up a system whereby they would contract with one large central laboratory for each city borough, failed because a coalition of clinical laboratories

obtained a restraining order to enjoin the program's implementation.

If the State attempts to implement a proposal similar to Recommendation #518 or initiates any large scale centralization plan for the Medical Assistance laboratory program, it can expect a similar reaction from the Illinois private laboratory sector.

(3) Collection and Transportation System. As mentioned in Item (5) above under "Needs," a timely and cost effective collection and transportation system is a firm requirement. Although the problem is complex, it is not insurmountable.

(4) Laboratory Facilities, Personnel, and Equipment. To provide testing services for a laboratory program as large as that of DPA would require significantly more resources than are currently available in the Department of Public Health. The cost to expand the DPH program to meet this increased workload would be substantial but would still probably effect an overall savings when combined with the cost savings from the DPA program. An analysis to determine true cost savings is essential before an accurate weighing of cost savings against problems is possible. This subject will be discussed further in Section V of this report.

IV. CRITERIA OF A LABORATORY SYSTEM FOR DMHDD, DPH, AND DPA

As a result of the studies conducted in the DMHDD, DPH, and DPA, we are able to identify certain criteria which are requirements of a laboratory system for these agencies if it is to be responsive to the program needs of the agencies.

1. The laborabory system must have adequate and appropriate facilities. Adequate and appropriate facilities include location; design and size of space; air handling, electrical, and plumbing systems; as well as safety considerations.

2. The laboratory system must provide an adequate quality testing service. The elements of quality testing services include appropriately trained personnel, adequate equipment, sufficient supplies, and proper test methodologies. To insure that the testing is accurate and reliable, both internal and external quality assurance must be established.

3. The laboratory system must provide a sufficient quantity of testing services. The quantity elements are appropriate range of types of testing services available and the capability to perform the required number of tests.

4. The laboratory system must provide an acceptable system for collection and transportation of specimens. Adequate collection of specimens requires correct instructions, trained personnel and appropriate collection materials such as slides, media, test tubes, etc. The transportation elements include the time required to carry the specimen from the collection site to the laboratory and the temperature control of that specimen during that period.

5. The laboratory system must provide a timely and meaningful report on the analysis of the specimens. The time required to return the laboratory report must be acceptable to the specimen submittor and must be interpretable and understandable to him.

6. The laboratory system must be economically feasible. The system should not cost more than the current combined laboratory budgets and, in fact, should reduce costs to a level which is below the current cost.

7. The laboratory system must be controllable by the Departments. The elements of control include planning, directing, evaluating and modifying activities of the laboratory system.

8. The laboratory system must be politically feasible. The elements of political feasibility are acceptance of the system by appointed and elected government officials, special interest groups, and the general population.

9. The laboratory system must be legal. The system must operate within the legal limitations of applicable State and Federal laws.

V. EVALUATION OF ALTERNATIVES

A. Alternative Actions

There are two alternative actions which must be considered for implementation in the State of Illinois. These alternatives can be evaluated by utilizing the criteria of a laboratory system developed and reported in IV of this report.

Alternative #1

The DMHDD, DPH, and DPA can continue to operate just as they currently are doing.

Criteria: Adequate Facilities

The DMHDD has laboratories housed in buildings at the various centers which range from very good to poor. The older facilities generally have inadequate mechanical and electrical systems, but they do have ample square footage available. None of the centers related any major difficulty regarding available space.

The DPH central laboratory in Chicago is a modern facility constructed for laboratory use. It is a completely adequate facility. The Springfield Branch Laboratory is housed in an old building entirely unsuited for laboratory work. There is currently an effort underway to construct a new laboratory facility in Springfield. The Carbondale facility, even though quite old, is considered adequate for the limited testing which they do. The DPA has no laboratory facilities.

Criteria: Adequate Quality

One of the major concerns expressed to the study team concerned the quality of testing at the DMHDD facilities. The training and experience of the laboratory personnel at many of the centers was considered by Department personnel to be only a minimal qualification. Standard methods and standard quality control procedures did not exist. Participation in proficiency testing programs was sporadic. Very few of the laboratory employees

participated in continuing education programs. Equipment was minimal; supplies were often not available.

The DPH did not experience the same concern about quality of testing services. Except for a very few isolated instances, the quality of the testing services was considered excellent.

The quality of laboratory services provided by some independent clinical laboratories for which reimbursement is provided through DPA is "suspect." In 1976, nine clinical laboratories participating in the Illinois Medicaid program were terminated from the program.

Criteria: Adequate Quantity

The DMHDD centers reported only mild difficulties with the range of testing available to them. At some locations drug analyses and sophisticated clinical tests were not available. Some centers wanted a broader variety of services from their own laboratory. The number of tests performed presented problems for such things as chemistry profiles and therapeutic drug monitoring. The causes of this problem were identified as inavailability of a convenient reference laboratory and the lack of automation in the facility laboratories.

Quantity of testing is a major problem to the DPH. The laboratory has to limit the number of specimens it can accept because of limited number of personnel and limited equipment and supplies. The DPH also has problems providing the range of testing needed. The tests needed but currently not available are identified throughout the report on Public Health which is Attachment II of this report.

The DPA has concerns about the quantity of testing, but the concern is that there is over utilization of services, and not inavailability of type or number of tests.

Criteria: Specimen Collection and Transportation

Although collection of specimens at the various DMHDD centers can be very difficult, the center personnel do an excellent job of overcoming the difficulties. Specimen transportation results in very few difficulties since the majority of the laboratory specimens are processed at the facility laboratory.

Specimen collection and transportation does create problems for the DPH laboratories. Most of the specimens received in the DPH laboratories are collected by non-DPH laboratory personnel. Thus, there is very little control over the collection procedure. Specimens are transported to the laboratories by mail, bus, courier, and private individuals.

Physician and independent clinical laboratories generally have established procedure for specimen collection and transportation. The procedure presents no real problem to the DPA.

Criteria: Timely and Meaningful Reporting

The DMHDD centers perform most of their laboratory tests on an "as soon as possible" or "stat" basis. Consequently, timeliness is not a problem for those tests. However, many centers did identify "slow reporting" as a problem with their reference laboratories. Test interpretation was not identified as a problem.

In many instances, the users of the DPH laboratories identified late reports as a problem. There were no difficulties with interpretation of the report.

There is no information regarding this criteria for DPA.

Criteria: Economic Feasibility

Economic factors are a major consideration of the DMHDD. The current laboratory arrangement does not provide for any sharing of services and consequently, does not allow for any of the cost efficiencies of automation.

The DPH has only a central laboratory and two branch laboratories. Thus, they are able to take advantage of the efficiencies of centralization and regionalization.

Cost control is the prime consideration of DPA. In FY 1978, there were 180 certified independent clinical laboratories which were providers of services for the DPA. Providing payment to this number of laboratories is not the most economical method for providing the laboratory service.

Criteria: Program Control

Departmental control of the DMHDD facility laboratories is very limited. The laboratories tend to function on a narrow locality basis, rather than on a departmental need basis. There is little or no standardization, coordination, or sharing of resources between the various facilities.

The Division of Laboratories, DPH, has control over the internal operations of the three laboratories. There are external factors, such as legislation, which do affect their control on what services can and will be offered.

DPA has virtually no control over the number and type of tests for which they will provide payment. They do provide control over how much they will pay for certain procedures.

Criteria: Political Feasibility

Because the laboratory systems of DMHDD, DPH, and DPA are currently functioning, it must be concluded that the three systems are politically feasible. However, there are attempts being made to close some of the DMHDD centers (including laboratories). An attempt has also been made to close the Carbondale Branch of the DPH laboratories.

Criteria: Legality

No questions were raised regarding the legality of the three systems as they currently exist.

Alternative #2

Recommendation #518, "Use Public Health Facilities to do Laboratory Work for the Departments of Public Aid and Mental Health."

Criteria: Adequate Facilities

The DMHDD Centers would need only limited laboratory space. The present space is very adequate for specimen collection and storage.

The DPH would have to expand their facilities greatly to accommodate all of the workload included in Recommendation #518. The DPA, of course, has no laboratory facilities.

Recommendation #518 would require a major expansion of the DPH laboratory facilities, especially the main Chicago laboratory, because the School of Public Health now occupies approximately 50% of the facility. The new Springfield laboratory, now under consideration, may be of some help, but with the majority of the DPA laboratory workload centered in the Chicago area, it would be best to rely more heavily on Chicago facilities.

Criteria: Adequate Quality

Recommendation #518 provides an excellent opportunity to upgrade the quality of testing for the three agencies.

The Public Health Laboratory is known for its quality and Recommendation #518 would not detract from that quality. Many of the laboratory tests provided to DPA clients are now provided by certified independent clinical laboratories. Controlling the quality of work of these labs is very difficult. If the Public Health Laboratory were to provide the testing, all of the elements necessary to a quality program, i.e., trained personnel, adequate equipment, sufficient supplies, and proper test methodologies are already in place. In addition, the Public Health Laboratory is the quality control regulatory agency for the State and that capability could be utilized for establishing clinical laboratory competency.

Criteria: Adequate Quantity

The laboratory system as proposed by Recommendation #518 would satisfy this requirement totally. In order for a laboratory to be able to provide a wide range of tests, there must be sufficient demand for the test. The resource requirements for various categories of tests vary greatly. Some testing services, such as virology, require professional laboratory skills which are completely different than any other laboratory activity. Certain tests require very specialized and very expensive equipment. A laboratory is not able to hire such personnel or buy such equipment unless the demand for

those particular tests is of sufficient volume to justify the expense of obtaining those resources.

Laboratories with large volumes of tests are able to efficiently utilize automation. They are able to test hundreds of like specimens sequentially by testing them in large batches.

Recommendation #518 would require the Public Health Laboratory to process great volumes of all tests and thereby make it efficient and economical for the laboratory to provide a complete range of testing services.

Criteria: Specimen Collection and Transportation

Inherent in Recommendation #518 is the concept of a large centralized Public Health Laboratory with branch laboratories in selected locations in the State. The majority of the specimens would come from the Chicago metropolitan area and testing would be done at the Central Laboratory in that area. Collection and transportation of specimens in the metropolitan area would provide very little problem for the DPH and the DMHDD specimens. DPH specimens are currently being handled adequately. Setting up a collection and transportation system for the DMHDD facilities in the metropolitan area would cause some developmental and logistics problems, but could be accomplished without exorbitant expense.

A system for the DPA work would be a major undertaking both to plan and to finance. All of the DPA work is now done by independent clinical laboratories that provide their own collection service. The Public Health Laboratory would have to set up a collection and transportation system of its own to replace that service now provided by the private laboratories.

This service must include personnel to draw and collect the specimens and facilities in which to perform the collection, as well as transportation from the collection point to the laboratory. Collection stations would have to be established at various points in the metropolitan area. The DMHDD facilities and personnel could be used very effectively for this purpose and would provide coverage for those geographical areas where they are located.

Unfortunately, those few stations would represent only a small portion of the total required stations in the metropolitan area. Many neighborhood collection stations, manned and equipped, would probably have to be created and this would be a costly item.

Criteria: Timely Reporting

This criteria is largely dependent on the management system employed by the laboratory for recording, tracking and reporting out the results to the user. Recommendation #518 provides no particular advantage over the current systems in meeting this criteria. No major problems in this area were reported by either DMHDD or the DPA. Recommendation #518 would not be able to provide the "medical emergency" (stat) testing now available. Whether or not that is a major factor in adopting Recommendation #518 would be dependent upon what types of tests would be included in the Recommendation #518 system and which would continue to be tested by hospital and private clinical laboratories.

Criteria: Economic Feasibility

We have defined "economic feasibility" to be simply a cost savings to the agencies involved. We do not have a definitive answer to the question of whether or not Recommendation #518 would cost more or less than the current separate operations. The analysis to determine that would require a completely detailed plan of operation for Recommendation #518. Our findings, so far, lead us to believe that Recommendation #518 would result in an overall cost reduction. We must be careful not to make such a conclusion, however, since as already pointed out, there are some very costly elements contained in the Recommendation #518 approach; i.e., facilities and specimen collection and transportation. The cost savings, especially for the DPA testing, should be significant and more than adequate to offset the additional costs in the other areas.

Criteria: Program Control

Our study revealed that both DMHDD and DPA feel a need for better program control over the laboratory operations. Both departments have effective management operations and control systems in

place, but the nature of the laboratory programs and all of its peripheral elements, (political, legal, special interests), make effective program control literally impossible.

The basic foundation of Recommendation #518, the centralization concept, has a built-in program control. The diffusiveness of the present DPA program and the autonomy of the Mental Health Centers makes their laboratory programs inherently uncontrollable.

Criteria: Political Feasibility

Recommendation #518 has at its center, a political bombshell. As evidenced in other locations, notably New York City, any attempt to centralize laboratory services in the Medicaid program is an open invitation to opposition from the private laboratory sector. We realize that the State of Illinois is aware of this very powerful force and there is little we can add to that knowledge.

The private laboratory sector is not the only group to deal with politically. Other special interest groups who may oppose Recommendation #518 just as strongly include some physicians, some government officials, and others who have a special interest in keeping a program such as Recommendation #518 from being implemented.

The political problems involved in transferring the mental health work are not as volatile as those of the DPA but some do exist. The major problems would be related to internal politics within the DMHDD agency. There may be those who would be reluctant to give up control of their laboratory and create opposition to the centralized concept, especially since it involves the additional risk of giving up that control to another agency.

Criteria: Legality

The only legal problem is that of the Medicaid program's "Freedom of Choice" provision. This was discussed in Section II of this report and in detail in the Attachment III. As pointed out in Attachment III, there still exists a possibility that the freedom of choice provision would not impede the implementation of Recommendation #518. The injunction in the New York case was imposed only on the City of

New York, and there is no assurance that if the State of Illinois were to attempt a similar plan, that it would be stopped, and it may not be a problem at all. The Recommendation #518 proposal is different from the New York case in that it involves the work being performed by a State agency, the Department of Public Health. This factor alone may be enough to legally allow its implementation, despite the Freedom of Choice clause.

B. Summary

Neither alternative provides a completely satisfactory laboratory system for DMHDD, DPH, and DPA. Table 20 presents the major strengths and weaknesses of the two alternatives. The most significant advantages and disadvantages are identified by an asterisk.

Both of the alternatives have serious disadvantages. Alternative #1, continuation of the existing system, has the major weakness of poor quality control for testing services for DMHDD and DPA and insufficient program control for DPA and to some extent DMHDD. Probably the major problem with Alternative #1, and the impetus for Recommendation #518 is the extremely high cost for DPA clinical laboratory tests.

Alternative #2, implementation of Recommendation #518, has major difficulties. There is no facility available which is appropriate for such a large clinical laboratory because the School of Public Health currently occupies half of the Division of Laboratories' building in Chicago. Alternative #2 also requires a very extensive and efficient specimen collection and transportation system. This system presents complex planning problems and would be very costly to implement.

Perhaps the most unacceptable element of Recommendation #518, to the medical community, is the lack of provisions for handling medical emergencies and stat testing at the DMHDD centers as well as for provider physicians in the DPA program.

An explosive political situation exists and could well impede the implementation of Recommendation #518. Independent clinical laboratories stand to lose lucrative accounts if Recommendation #518 is implemented.

The "Freedom of Choice" clause in the Federal Medicaid statutes constitutes a very real threat to Recommendation #518 implementation.

TABLE 20

Evaluation of Alternatives #1 and #2

Evaluation Criteria	Alternative #1 Continuation of Existing Systems		Alternative #2 Recommendation #518	
	Strengths	Weaknesses	Strengths	Weaknesses
Facilities	*Present facilities adequate, except DPH Springfield	--	--	*Major building program required
Quality	Adequate for DPH	Controls on quality are marginal for DMH & DD and DPA	*Provides excellent quality control system for all depts.	--
Quantity	Adequate for DMH & DD and DPA	Range & # of tests limited for DPH	*Maximum utilization of automation & centralization	--
Collection and Transportation	*The DPA & DMH systems are adequate	DPH systems are varied & could use improvement	Provides a regular schedule, temp. controls & timeliness	*Complex planning and high cost
Timely Reporting	DPA & DMH systems are adequate	DPH has minor problems	--	*Difficulty in providing emergency testing service (stat)
Economic Feasibility	--	*DPA costs are high	*Use of automation reduce DPA costs significantly	--
Program Control	DPH adequate	*DMH & DPA programs need better control	*Provides excellent program control for all 3 agencies	--
Political Feasibility	No major problems	--	--	*Both DPA and DMH & DD would have political problems implementing #518
Legal	--	--	--	*DPA has a major legal problem

*Most significant strengths and weaknesses.

Both alternatives offer some very distinct advantages to the involved agencies. Alternative #1 does have the advantage of adequate facilities to accommodate all of the clinical laboratory workload and no new facilities would be required, at least in the near future. The existent specimen collection and transportation system is generally satisfactory.

Alternative #2 provides a number of elements which would be beneficial to the State. Recommendation #518 would provide the agencies with an excellent quality control program and practically assure quality testing. It offers an efficient and economical system for large volume testing and the opportunity to utilize automation to its maximum potential. It provides the agencies with excellent management control over their laboratory operations.

The current system is not satisfactorily meeting the established needs and thus, changes should be made. However, implementation of Recommendation #518 is not feasible at this time, because of the major problems of facility construction, specimen collection system, the probable political difficulties, and the present legal considerations. Therefore, we recommend a laboratory system which more nearly meets the established criteria and provides for a continued progression toward the efficiencies of centralization and automation.

VI. RECOMMENDATIONS

A. Provide the required specialty testing from a central laboratory. The DMHDD and the DPH need certain laboratory tests which can be classified as specialty tests. They are classified as specialty tests because they generally require highly trained or specialized laboratorians. These tests do not lend themselves to routine automation, and thus, are quite expensive if performed on a small scale. Tests identified as specialty tests include toxicology, mycology, parasitology, virology, bacteriology, mycobacteriology, immunology, and exfoliative cytology.

These tests are currently being obtained by DPH and DMHDD through various methods. The Division of Laboratories, DPH, offers a complete array of microbiology and limited clinical toxicology. The DMHDD laboratory facilities are quite varied. Some provide limited bacteriology and parasitology. Others offer minimal toxicology analyses, or provide their own exfoliative cytology. Most of the specialty tests are currently being obtained through contract with a hospital laboratory or an independent clinical laboratory. We suggest that a more appropriate way to provide these tests is through a State-run central laboratory. The major resources for this central laboratory are already available through either DMHDD or DPH resources. For example, exfoliative cytology examinations require a pathologist and usually a cytotechnologist. The DMHDD already has pathologists who could provide technical supervision for the exfoliative cytology for all of the DMHDD facilities. They could also provide the required testing for DPH sponsored programs such as maternal and child health and family planning. Toxicology is another example where a consolidated or centralized effort would provide better laboratory support than currently exists. The Division of Laboratories, DPH, currently conducts some toxicology analyses. Their analyses are not, however, geared specifically for the clinical needs of a DMHDD facility. However, with additional personnel the toxicology could be provided from the central source, thus, eliminating the large number of contracts for clinical toxicology. The microbiology could be provided from the Division of Laboratories, DPH.

B. Establish a regional laboratory system to provide the routine clinical laboratory tests required. Most of the DMHDD center laboratories are manual operations. Several of the larger facilities do have some automated equipment, but even in these larger laboratories the instrumentation is minimal. Clinical chemistry and hematology analyses are the most often required tests at the DMHDD facility. Both of these disciplines are readily automated. Instrumentation is available which would reduce the personnel cost and time requirements for these tests. The price range for the equipment is extremely broad depending upon the complexity and speed of the specific instrument. However, the cost of the instrumentation would not be justified for each of the facility laboratories because the volume of testing performed at the facilities is generally not great enough. Thus, we suggest that some centralization of testing should be initiated. It would be possible to conduct all of the analyses in one facility. However, the "one facility" concept would require capital expenditures for a building. In addition, the logistics of a central laboratory for all of the routine tests would probably become very difficult. Thus, we suggest that as an interim step a series of regional laboratories be established. The number of these laboratories could range from two to a high of probably ten. However, the fewer regional laboratories established, the greater the efficiency of automation can be. It should be noted here that the DMHDD centers have hard copy capabilities. This would enable the central and regional laboratories to provide hard copy reporting of laboratory results.

C. Continue to provide basic laboratory services such as urinalysis and specimen collection and handling at the DMHDD centers. In order to insure that laboratory testing maintains a high quality at the DMHDD centers, we suggest that the basic laboratory services should be continued at the facilities. The laboratory personnel assigned to the centers would be responsible for those routine tests such as urinalysis and would provide competent specimen collection, handling, and shipment. Laboratory personnel at some of the centers may be able to also provide the required stat testing for medical emergencies. However, in the event that the personnel cannot conduct the needed tests, then the testing should be obtained on an emergency basis through local hospitals just as most of the acute care is currently being obtained.

D. Continue to use existing laboratory facilities. As has been discussed previously and demonstrated on Table 20, the present laboratory facilities of DMHDD and DPH are adequate for the current operations with the exception of the DPH Springfield branch laboratory. Independent of this study, however, an effort is being made to build a new laboratory facility in Springfield. If this effort is successful, the facility weakness will be corrected. In recommendations A, B, and C above, we have described the type of testing to be accomplished at a central, a regional, and a local laboratory basis. If these recommendations are adopted, and testing done according to the guidelines, the current facilities of DMHDD and DPH should be adequate to handle all of the testing requirements.

E. Establish a regularly scheduled courier service for each of the DMHDD centers and the DPH laboratories. In order for a centralized or regionalized system to be effective, there must be an adequate system to transport specimens to the laboratory testing facility and to send the laboratory test results back. A courier service appears to be the most efficient and effective way to insure the transportation needs. The DMHDD centers already have a courier system in operation. It should take only a small effort to adjust this current courier system so that it could provide a regularly scheduled laboratory run.

A courier service for DPH will entail more effort because their specimens originate from such a broad variety of sources. However, the main source of specimens which appears to create difficulties is the local public health departments. Thus, a limited courier system could be established between the local health departments and the DPH laboratories.

F. Establish a standard quality control program for each of the laboratories. Underlying each of the recommendations of this report is the need for accurate laboratory testing. The recommendations, as proposed to this point, should provide an economical method of obtaining the laboratory support. However, to insure that the quality of the laboratory testing is maintained on a high level, a formal quality control program should be initiated at each of the laboratories. The quality control program should include both internal and external elements. The internal quality control program would include

standard methodology, correct use of standards and controls, and mathematical and statistical determinations. The external quality control program would include "known" specimens submitted to each facility to evaluate that laboratory's accuracy. The type of quality control program initiated at each facility would be dependent upon the type of work performed at the facility. For example, quality control for a DMHDD center laboratory would be much different than the quality control of a regional chemistry or hematology facility.

G. Establish a standard laboratory contract for those tests which cannot be provided directly by the central, regional, or facility laboratory. Even under the system which we have recommended, there still will be tests which cannot be performed for a variety of reasons at the State facilities. These tests must be obtained through contract. However, rather than each DMHDD facility negotiating its own contract, we suggest that the State should negotiate one central contract. This should result in improved laboratory performance because quality control of one laboratory is much easier than control of a dozen laboratories. The volume contract should also prove to be more economical.

H. In order to facilitate the implementation of recommendations A through G, we suggest that an organizational change is appropriate. The system which we have proposed in these recommendations is highly sophisticated and will require much coordination. Thus, from an organizational viewpoint, we recommend that one State agency be given responsibility for developing and providing the laboratory support. We suggest that a clinical laboratory component be established in the Division of Laboratories, DPH. The Division of Laboratories can serve effectively as the parent organization because it already has a large centralized laboratory system in operation. The clinical laboratory component would be staffed by positions which are currently available at the DMHDD facility laboratories. We suggest that the laboratory personnel from these facilities be transferred to the Division of Laboratories, DPH. Although most of the personnel would remain at the site where they currently are employed, the Division would have the flexibility to reassign personnel to the central or regional facility. In addition, current

personnel can be retrained for more specialized positions or through attrition, different disciplines can be added as the need of the new organization changes.

These changes should provide a laboratory system to meet the needs of DPH and DMHDD in an efficient and economical manner, and can be established in a relatively short time span. The DPA requirements are more complicated, more extensive and will require a longer implementation period.

Since the Public Health Laboratory system does not, nor will it have in the near future, the clinical laboratory testing capability to accommodate the DPA workload, the DPA should plan an interim approach which would help to reduce costs. The Phase III report, attached, refers to and provides some detail on the contract approach attempted by New York City in 1975. We recommend that the tri-agency study committee immediately take steps to plan and implement a similar program for the DPA workload. This program would require a very detailed plan to assure its success. Paramount in this planning would be a decision to determine if the program should cover the entire State, the Chicago metropolitan area only, or possibly just include a small section of the State.

The major obstacle to this type of proposal is the "Freedom of Choice" requirement in the Medicaid regulations. The "considerations" discussed in the last section of the Phase III report provide some possible solutions to that problem. They were as follows:

1. Presume Precedents Do Not Apply

Assume that the "freedom of choice" requirement is not applicable to laboratory services. The New York injunction is not legally binding anywhere except in New York City. (Realistically, however, we must recognize the precedent value of the case.) We discussed this issue with three HEW Regional Offices and one of them indicated that if one of their states were to submit a plan similar to the New York City plan that they would probably approve it. Their interpretation of the "freedom of choice" requirement is that it does not include laboratory services.

In fact, it appears that there was no HEW involvement in the New York case until the clinical laboratories sought an injunction against the New York City program. In other words, HEW allowed the City of New York to proceed with their plans until objections were raised.

There is no legal reason why the State of Illinois could not submit a plan for approval to test the HEW position on "freedom of choice." Keep in mind that the Illinois case is at once different from New York City because it proposes that a government agency provide the service (Public Health Laboratory). This in itself could be enough of a difference to allow approval.

2. Await Congressional Action

Take no action until Congress passes a bill which waives the "freedom of choice" requirement. A drawback to this is that we know the difficulty and time involved in getting bills through Congress. In this instance, it must be recognized that the New York case was in 1975. The GAO has pushed for HEW and Congressional action since that time and it is still NOT accomplished. Even in choosing such an option, the State should proceed with the planning of a very specific program.

3. Reimbursement Rates to Reduce Profit Motive

One HEW official stated, "A state has the discretion to set the level of reimbursement for laboratory tests at any rate. If the payments were set at rates lower than any private laboratory would be willing to compete, then the State laboratory would automatically assume the work."

Generally, the recipients of public aid, including laboratory services, are persons who cannot afford private medical services. Thus, if the State and Federal government did not pay the independent clinical laboratories for the public aid work, then, in all likelihood, the work would not be done.

The New York case involved private laboratories competing for public dollars. What are the rights of private enterprise to these public dollars, if the services can be provided by the state more economically through utilization of its public health laboratories? It seems only reasonable that every effort should be made to be as prudent as possible with these tax dollars. If the state can save literally millions of dollars by utilizing state facilities and employees for public programs, then they should be encouraged to do so.

As mentioned earlier in this report, one state public health laboratory director has solicited public aid work for his laboratory as a source of income. We are aware that several state legislatures are now looking at their state public health laboratory as an organization which can charge

for their services and thereby reduce the use of tax dollars for their support.

If the state can conduct tests at a cost that would provide sufficient income to pay for the operation of the state public health laboratories, and yet show a substantial cost savings as compared to obtaining the tests from private laboratories, then it seems a logical alternative.

4. Demonstration Project Waiver

Section 1115(a) of the Social Security Act permits waiver of otherwise controlling provisions including such provisions as "freedom of choice." These waivers are obtained by the submission of a plan through the HEW Regional Office to the Federal Health Care Financing Administration in Baltimore, Maryland. Such a plan would have to stress evaluation of cost, quality, and timeliness of services and show comparisons to competitive contracting, and rate setting methods.

Regardless of which geographical area DPA selects or which implementation method is chosen, or even if a decision is made to continue with the status-quo condition until the Public Health Laboratory can accommodate the DPA workload, extensive planning and preparation is required. If the recommendations of this report are adopted, we suggest that the present Interagency Study Committee develop a detailed plan which would provide the information required to determine an acceptable approach for inclusion of DPA laboratory services. This committee should undertake the following tasks:

1. Determine laboratory tests to be included. The plan that the City of New York proposed in 1975 (discussed in detail in our Phase III report) included, as a part of the contract, only those laboratory tests amenable to large-scale automated processing.

The Committee should make a careful study to determine which laboratory tests would be best to include in a centralized or contracted laboratory operation in Illinois. They should assess all the factors which would have an effect on that determination: (1) Which tests, if included, will provide the largest cost reduction? (2) Which tests can be more efficiently performed by local independent clinical laboratories? (3) Which tests would require an expenditure for equipment or supplies which would make them economically impractical to include in the centralized or contracted project?

All of the information regarding test costs, test volume, and expenditures for each test are included in our report or are readily available from the appropriate agency.

2. Determine what geographical area(s) and which patient groups to include in the project. As pointed out in this report, the overwhelming majority of DPA laboratory reimbursement is in the Chicago area. Thus, no matter which approach the State takes (#518, #518 phase-in, centralized contract) no substantial cost savings can occur unless the Chicago/Cook County area is included in the project.

Even though the Chicago/Cook County area is the ultimate target, it may not be the most appropriate location to begin the program. The enormity of services required and political conditions may indicate that a smaller, less complex area be selected as a pilot project. Serious program deficiencies can be corrected during the pilot project phase, thus avoiding a severe disruption of medical services to the public aid providers and recipients in the rest of the State.

It may be necessary or advisable to exclude from the program, laboratory services ordered for certain patient groups. For example, the New York plan excluded from their contract coverage, hospital inpatients, affiliated nursing homes, hospital outpatients, HMO's, and group medical plans.

3. Design a specimen collection and transportation system. Regardless of the approach selected to accommodate the DPA workload, a carefully planned and detailed specimen collection and transportation system must be designed. Even if a contract were planned, which included specimen collection by the contractor, the State would be required to provide the contractor with contract specifications for the system.

If only Cook County or the City of Chicago were to be included in the project, a vastly different specimen collection system would be required than if rural counties in southern Illinois were included.

In certain instances, it may be advisable to set up "collection stations" throughout a city where the patient would go for specimen collection. This would require determining the number of Medicaid patients in each area of the city, evaluating public transportation (for patient convenience), and determining the best system for specimen pickup and transportation to the laboratory.

These systems can become quite complex, very costly, and will in all probability be the key element to success or failure of the total operation. Because of the potential cost of a collection system, the task force should be particularly careful in ascertaining costs for this system. It could be the element which would be decisive in determining the cost effectiveness of the total system.

4. Plan for medical emergencies. Include in the program planning and cost estimates for each system a plan for collection, testing and reporting for emergency laboratory work. Regardless of which system is eventually selected, it must include the capability for handling emergency testing or the system will certainly fail.

5. Develop cost analyses for each of the possible DPA laboratory inclusion programs under consideration. After evaluation of data obtained in items 1 through 4 above, the Interagency Study Committee should be able to identify alternatives which are desirable and feasible. These alternatives should then be compared on an economic feasibility basis. Costs should be prepared for each component of a system; i.e., personnel, facilities, equipment, specimen collection and transportation system, contract costs, etc. These cost estimates should be prepared for each alternative system and compared to each other and to present costs.

Our recommendation that the DPA workload not be included in the initial phase of the DPH - DMHDD laboratory system is based primarily on the inability of the Public Health Laboratory to accommodate that volume of work without very large expenditures for facilities, equipment and personnel.

We want to stress, however, that the DPA should move forward vigorously with plans to incorporate their workload into the State centralized system as soon as it can be accomplished. In the meantime, the DPH and the DMHDD will be gaining valuable experience with their joint venture and will be much better equipped to accept the additional DPA workload.

We will be happy to work with the Interagency Study Committee in any way that the State feels we can be of assistance.

ATTACHMENT 1

Phase I

A STUDY OF THE LABORATORY SYSTEM

STATE OF ILLINOIS

Department of Mental Health & Developmental Disabilities

Study by: William D. Adams, Management Consultant,
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J. Brian Dugan, Program Consultant,
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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
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I. INTRODUCTION

A. Background Information

On September 5, 1978, the Director of Public Health, State of Illinois initiated a letter to the Director, Illinois Department of Public Aid (DPA), and the Director, Illinois Department of Mental Health and Developmental Disabilities (DMHDD). The letter proposed the establishment of a study committee from the three agencies to respond to the Governor's Cost Control Task Force Recommendation No. 518:

> "Use Public Health facilities to do laboratory work for the Departments of Public Aid and Mental Health."

Dr. Hugh-Bert Ehrhard, Chief, Division of Laboratories, was named as the State Health Department's representative.

Dr. John Nelson, Coordinator of Medical Services, DMHDD, and Mrs. Wilma Gay, Program Coordinator, Bureau of Provider Services, DPA, represented their agencies on the committee. The committee met on November 16, 1978 at the Division of Laboratories office in Chicago. At the first meeting the committee discussed the Task Force recommendation and its effect on the three agencies. After that initial meeting each of the committee members began to collect data on the laboratory services of their agencies. Mrs. Gay provided computer printouts of DPA laboratory service costs in Cook County. Dr. Nelson requested data from all of the DMHDD facilities regarding laboratory services.

Dr. Ehrhard, the committee chairman, in a February, 1979, progress report to the State Health Department, indicated that he wanted to request assistance from the Center for Disease Control (CDC) in Atlanta, Georgia. On March 30, 1979, Dr. Ehrhard did request assistance from Dr. Edward L. Cavenaugh, Director, Laboratory Management Consultation Office, Bureau of Laboratories, CDC. Dr. Cavenaugh asked Mr. Brian Dugan and Mr. Bill Adams to meet with Dr. Ehrhard at the annual meeting of the Association of State and Territorial Laboratory Directors. These discussions were conducted on April 8, 1979, to determine the best method of providing assistance to the Illinois Governor's Cost Control Task Force Committee.

Mr. Dugan then met with the Committee in Springfield, Illinois on April 26, 1979. It was at this meeting that the type of consultation assistance that CDC would provide to the study committee was identified. Dr. Ehrhard then finalized the consultative request in a letter to Dr. Cavenaugh, May 2, 1979. Plans were made to divide the overall question (Recommendation #518) into three study phases. The rationale for this approach was that, before any recommendations could be developed, each agency's laboratory service needs and resources had to be identified. Phase I (May - July) is a review of the current and future laboratory service needs and resources of the DMHDD. Phase II (July - September) is a review of the State Public Health Department's laboratory needs and resources. Phase III (October - December) will address the DPA service needs. Upon completion of these studies, a report will be made regarding the feasibility of Recommendation #518.

The following report is an interim summary of the Phase I activities of the CDC consultant team.

B. Methodology

From the discussions with Dr. Nelson in the April committee meeting, it was apparent that a plan had to be devised to include all of the DMHDD facilities. On April 27, Mr. Dugan met with Mrs. Efrosini John, Chief, Evaluation Services, Elgin Mental Health Center. Mrs. John provided DMHDD planning documents, previous study reports, and a wealth of information regarding the Department's facilities. Mrs. John and Dr. Nelson worked with the consultants to develop and disseminate the study questionnaire and set up all the facility appointments. Once the consultant's itinerary was established, all DMHDD facilities were notified by Infonet. The study questionnaires were sent out prior to the consultant's visit.

The CDC consultant team met with Dr. Nelson and Mrs. John in Elgin to discuss final plans and arrangements on Sunday evening, May 6, 1979, prior to initiating the on-site portion of the study. From May 7 - 18, 1979, the CDC consultants visited all of the DMHDD facilities collecting laboratory workload data; cost of laboratory operation and contractual services; and, other related data from each facility. It was necessary to visit each of the facilities because the laboratory data from the individual

centers was not standardized, and thus was not appropriate for analysis.

In a close-out session May 18, 1979, the consultants met with Dr. Nelson, Mrs. John, DMHDD, and the other committee members to discuss preliminary impressions regarding the on-site visits. This report is an elaboration on the findings given at the close-out session.

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II. GENERAL FINDINGS AND RECOMMENDATIONS

This section presents the findings and subsequent preliminary recommendations of Phase I of this study. The use of the term preliminary needs further explanation. The recommendations made in this report are directed solely to the DMHDD laboratory system. If the DMHDD was the only department included in the study, we would make the recommendations for improvement within the system without reservation. However, there are two other department laboratory systems which need to be studied. Data obtained from the next two phases of this study may result in the study team altering and modifying some of these recommendations. For example, one of the recommendations contained in this report concerns the establishment of an "internal and external quality control program" for each institution laboratory. This recommendation could be altered if during Phase II of this study a need for quality control programs exists at the local city and county health department laboratories. It would almost certainly be a duplication of effort for the DMHDD and the Department of Public Health to set up quality control programs. Thus, our recommendation, made at the conclusion, would take into consideration both the needs of DMHDD and Public Health.

For this reason, we suggest that none of the following recommendations be implemented by DMHDD until after the completion of the total study.

Recommendations:

1. Establish and implement standard laboratory requirements for all admissions, transfers, and annual physicals and discharges.

As a result of interviews conducted at the facilities, it was apparent that each facility was determining its own policy regarding laboratory requirements. Some patients are transferred from one facility to another. Often the patient receives laboratory tests at both facilities. Reasons given included "don't trust the lab results of the other institutions" or "our physicians want these additional tests."

The purpose of this recommendation and for its placement as the first recommendation is its importance to the entire concept of centralizing, regionalizing, or sharing laboratory services. These routine tests, along

with the routine employee physicals comprise the majority of the tests required at the facilities. Because of their routine nature, the urgency for test results (stat requests) is reduced. Thus, these specimens can be mailed or delivered to another site for testing without reducing the quality of the medical care provided to the patient.

In establishing these standard requirements, there are many variables which must be considered. For example, the laboratory tests needed for a severely retarded youth entering a facility will differ markedly from the tests needed for an alcoholic admission. Testing requirements at the short-term mental health facilities will differ from those at the long-term developmental disabilities facilities. Thus, the standard laboratory requirements to be developed must be specifically oriented to the type of patient in order to prevent "over testing" of some patients and "under testing" of others.

Most of the facilities no longer provide acute medical-surgical care to the facility residents. This care is usually provided by hospitals and physicians within the local community. The laboratories, however, report that they receive many "stat" requests. The study team does not question the need for some "stat" requests. However, "stat" requests should be limited to only those cases where medically indicated. We realize that only the attending physician can make the medical urgency decision. However, through education programs and consultation with the physicians, the number of "stat" requests can be reduced to the medical minimum and most of the requests for liver profiles, drug screens and complete blood counts will become more routine. These routine requests, in addition to the admission, annual physical and transfer tests, can then be considered as part of a centralized system.

2. Establish an adequate and standard internal and external quality assurance program.

Standardization of an internal quality control program will include: determination of the best available method for each type of test; selection and use of appropriate standards and controls and mathematical and statistical determinations regarding test results. Establishing an effective internal quality control program requires a great deal of effort, technical competence and some expenditure of funds. Many of

the laboratorians who were interviewed expressed concern about their existing internal quality control procedure. Also, the laboratory supervisors at many of the facilities were not pleased with the external quality control program in which they participated. We have collected data from the facilities regarding their participation in proficiency testing programs. Some do not participate in any external quality control program.

3. Negotiate a statewide contract or contracts for those laboratory services which are needed but which cannot be provided by the facility laboratory.

There are two basic reasons for having to contract for certain laboratory tests: (1) Complexity of the test. Some tests require very sophisticated equipment and/or specialized and highly trained personnel. It would not be economically feasible to equip and staff each facility to perform these tests. (2) Frequency of test requests. Some tests are requested only once or twice a month. Reagents needed for the test become outdated and thus are wasted. Because of the infrequent number of requests, the laboratorian does not get adequate experience with performing the test and thus, it is difficult to maintain competence and proficiency. Examples of tests which appear to be indicated for obtaining through contract are Pap smears, chemistry profiles, drug analyses, parasitology, and some or most of the bacteriology cultures.

Pap smears are currently being obtained by the facilities in a variety of ways. Some facility laboratories have their own pathologist who reads the Pap smears. Other facilities have a "consultation contract" with a pathologist which includes the reading of Pap smears. And finally, some facilities contract with a hospital or independent laboratory to read the Pap smears on a cost per slide basis.

Chemistry profiles are also being obtained in a variety of ways. Some facilities request a 6-test profile, others 12, others 18, and others even more extensive profiles. The price paid by the facilities for these profiles range from several dollars to over $15.00. The cost for drug analyses are also very different depending on the local contractual arrangement. One facility uses the Division of Laboratories, Department

of Public Health at no cost. Some do their own analyses at the facility laboratory. Some facilities use the Division of Laboratories for bacteriology and parasitology, some do their own work and others use local hospitals or contract with other clinical laboratories. Table 6 provides information regarding the source of laboratory tests for each facility.

When consideration is given to contractual arrangements, we suggest the following order of investigation: (1) Within DMHDD existing facilities. For example, DMHDD has a staff pathologist at several of the facilities. With the addition of cytotechnologists, these pathologists may be able to perform all of the required readings. (2) By the Division of Laboratories, Department of Public Health. Some of the facilities currently use the Division of Laboratories for drug assays, bacteriology, and parasitology. This service could possibly be expanded to other testing areas and to other DMHDD facilities. (3) By an approved clinical laboratory. The facilities currently have contracts with many individual clinical and hospital laboratories. Because of the low-volume test requirements, these individual contracts are often very expensive. A more inclusive contract, negotiated for all or most of the facilities, should result in a substantial reduction of the cost per test.

4. Develop a supply system for the facility laboratories which is responsive to their needs.

With very few exceptions, the facility laboratory supervisors related problems regarding the existing system for obtaining necessary supplies, media, and reagents. The system, as described to the study team, required a three month advance order, and an approximately three month delivery delay. Thus, the facility laboratories are required to anticipate or predict their workload six months in advance. There are three negative consequences to the current system: (1) Either over order and lose money because the supplies become outdated; or (2) be caught short, and thus be unable to do the test, and pay more because the test has to be sent to a contract laboratory; or (3) the test would not be done resulting in reduced quality of medical care. Several facilities have developed either formal or informal agreements to assist each other, through loans of supplies when available. Under the current system, many of the facility

laboratories are overstocked on a particular reagent, or they are using outdated reagents, or they do not have the necessary supplies to do a specific test. The study team suggests that a central purchasing mechanism be established. Each of the laboratories currently requisition their own supplies. Since most of the laboratories are small, the cost per testing kit or media is probably very high. High volume ordering generally reduces the cost per unit. The facility laboratories could then order their supplies from one central source. The central supply should provide optimal utilization of reagents and media and should result in a substantial cost benefit to the DMHDD.

5. The DMHDD facilities should attempt to cooperate in the provision of laboratory services.

Theoretically, regionalization systems of management occur because the "span of control" has become unmanageable. The central leader no longer has the capability to direct all of the operations which are under his authority. Regions are then established to reduce the direct supervisory responsibilities to a manageable condition. In Illinois, for the DMHDD, the regionalization concept has had a negative effect on the provision of laboratory services. Each region "takes care of its own." Even within the regions there are very few cooperative agreements. Interregional agreements are nonexistent, even though the facilities are sometimes located close together. The study team discovered only one formal agreement within a region (Attachment #1) and several informal agreements.

The current laboratory resources could be utilized to a higher degree if inter-facility cooperation could be achieved. The primary reason related to the study team for the lack of inter-facility agreements was "no financial incentive." The current budgetary system is so complex, or it is so misunderstood that transfer of funds for laboratory services generally is not done.

If the economic advantage of sharing laboratory services could be presented to the facilities, and if a simple transfer of funds or reimbursement mechanism is developed, the study team believes that the inter-facility cooperation will improve immediately.

6. The DMHDD facility laboratories equipment needs to be updated, improved, and an automated system needs to be developed.

Most of the facility laboratories are completely manual operations. Several of the larger facilities do have some automated equipment, but even in these larger laboratories, the instrumentation is minimal. ISPI, for example, has a policy which requires an 18-test chemistry profile on all new admissions. Each of these 18 tests are performed manually in the laboratory. In 1978, ISPI had 1,127 admissions which resulted in 20,286 individual manual chemistry tests. This is a large number of tests to be performed manually. There is automated equipment available on the market which would reduce the time required to conduct these profiles to a very short period. The price range for this equipment is extremely broad, depending on the complexity and the speed of the specific instrument. With the current workload at ISPI, it would be economically feasible to consider only the less sophisticated, semi-automated, less expensive equipment, because there are only approximately five specimens on the average to be tested each day. Hundreds of specimens can be run on the more sophisticated, completely automated, and thus, expensive equipment.

The study team collected data from each of the facility laboratories on the availability of automated equipment. Several of the laboratories do have some automation, for example, Madden, Elgin, and Chicago-Read. But there is so little investment in equipment throughout the DMHDD laboratory system that equipment did not have an impact on the recommendations of this study. The study team believes that most of the facility laboratories provide a needed service and that some type of limited testing should and can be provided in an effective and efficient way. Precise recommendations regarding automation cannot be made until Phase II (Public Health) and Phase III (Public Aid) of this study are completed. It would be possible to purchase one automated analyzer which could handle the entire routine chemistry workload for the DMHDD facilities. It would also be feasible to purchase 4 to 8 less expensive instruments and establish a regional system for providing the routine testing. The study team does not believe that it would be advantageous to provide automation in each of the facility laboratories. The final decision, however, should not be made until the completion of the study.

7. Appoint a laboratory coordinator for the DMHDD facilities.

At some point in the past, DMHDD did have a laboratory coordinator. He worked with the laboratories in such areas as equipment selection, technical consultation, arranging vacation and leave coverage, and other problems that occurred. The position no longer exists. Consequently, the laboratories are developing and functioning independently. The result is an extreme variation in approaches to providing laboratory services. The cost per test at the facility laboratories ranged from $1.16 per test to $6.77 per test in 1978. Cost per test at each facility for those tests obtained through contracts ranged from $6.06 per test to $22.72 per test.

Recommendations 1 through 6 of this report have dealt with existing problems in the DMHDD laboratory system. Supplies, quality control, inter-facility cooperation, cost, and automation are all areas where a laboratory coordinator would be of assistance. The laboratory coordinator would also be in a position to provide technical consultation and arrange for training for the DMHDD laboratory personnel. He could establish a valid workload and cost reporting system. The study team believes that the establishment of this position will greatly facilitate the implementation of the other recommendations contained in this report and will provide a focus for future problem solving in the DMHDD laboratory system.

SPECIAL NOTE:

Clinical laboratory testing is just one part of the overall medical care of the patients within the DMHDD. However, because it is a part of the more inclusive medical care system, any changes in the delivery of laboratory services can impact upon the total system. For example, Adler contracts with a private medical group practice for all of their medical needs. These physicians obtain the needed tests through their usual laboratory. If DMHDD were to decide on a centralized system for providing laboratory services, then the medical care system at Adler would be altered. Thus, any changes in the laboratory system must be considered in relation to the total medical care system.

III. SUMMARY DESCRIPTIONS OF THE DMHDD FACILITIES

This section includes a general description of the Department's 28 facilities. Twenty-six of the facilities provide inpatient services. One provides only outpatient diagnostic services, and the other provides no direct patient care. In each description, the introductory remarks are taken from the DMHDD, 5 Year Plan, FY 1976 - FY 1980 with additional updating and information provided by Dr. Nelson and Mrs. John. The summaries include comments, facts, and figures from the interviews conducted at each of the facilities and from the data contained in the tables included in this report.

IV. SUMMARY TABLES

The summary tables included in this section have been compiled from the data obtained from the questionnaire which was completed by each facility and from the information gathered during the on-site interviews at each facility.

Table 1 shows the magnitude of the laboratory services in DMHDD. In FY 1978, the most recent year for which complete data was available, the DMHDD laboratories conducted 962,199 tests at a direct operating cost of $1,830,928. The FY 1979 figures are projected from 9-month data. The projected FY 1979 total is approximately 80,000 tests fewer than the FY 1978 total. This indicated decrease may be nothing more than an error in projection.

Table 2 shows that the DMHDD facilities paid contract laboratories $240,599 for 21,863 tests. Thus, the total FY 1978 DMHDD laboratory costs were $2,071,527 for 984,062 tests.

Table 3 presents data regarding the number of tests and the cost per patient at each facility. Admission and Average Daily Census figures were combined to project the maximum number of residents for each facility. The average number of tests per patient ranged from .46 to 84.35. The average cost for laboratory services per patient ranged from $4.19 to $149.18.

Table 4 includes the number of tests and the direct costs per FTE for each facility laboratory. The average number of tests per FTE for all DMHDD laboratories was 9,651. The average direct cost per FTE was $18,346.

Table 5 lists the number and classification of laboratory personnel at each facility.

Table 6 lists the type of laboratory source from which each facility gets specific laboratory tests.

Table 7 presents the FY 1976 - FY 1979 workload by major category for each of the facility laboratories.

TABLE 1

DMHDD Laboratory Workload and Direct Costs
For Facility Laboratories, FY 1976-1979

Facility	Number of Tests Performed at Facility				Direct Cost for Laboratory Operation*			
	1976	1977	1978	1979**	1976	1977	1978	1979**
Singer	12,104	12,136	8,950	7,643	$ 26,111	$ 24,437	$ 20,618	$ 26,749
Dixon	NA	44,808	48,176	35,800	29,136	137,095	117,472	98,532
E. Moline	36,524	36,413	34,686	29,424	56,579	57,134	59,977	69,651
Galesburg	38,224	42,247	39,333	38,928	41,900	46,650	48,700	55,195
Zeller	16,166	16,302	15,030	15,432	36,194	36,774	41,039	48,800
Chicago-Read	266,646	259,621	208,754	196,990	304,300	300,091	295,914	307,447
Elgin	87,597	91,314	82,542	73,521	179,313	177,592	250,520	288,601
Ludeman	--	--	--	--	--	--	--	--
ISPI	37,225	37,616	41,457	40,423	77,069	78,609	90,256	87,200
Shapiro	52,112	54,670	66,454	63,428	66,677	52,205	85,093	73,376
Madden	41,047	47,573	50,633	47,578	51,625	62,339	67,972	103,233
Manteno	90,346	44,625	97,926	89,029	203,885	115,974	222,650	184,403
Tinley Park	69,773	80,852	85,273	81,748	75,745	77,863	99,482	108,473
Waukegan	--	--	--	--	--	--	--	--
Howe	10,047	10,236	15,117	20,099	NA	5,807	17,598	21,047
Jacksonville	15,020	17,056	20,840	22,635	23,846	30,095	34,694	43,871
Lincoln	NA	48,690	46,537	30,510	NA	101,549	107,999	98,508
McFarland	14,728	8,985	7,473	6,750	21,995	12,616	15,973	16,976
Meyer	--	--	--	--	--	--	--	--
Adler	--	--	--	--	--	--	--	--
Fox	NA	NA	4,849	3,901	24,681	24,575	24,459	23,270
Alton	17,295	20,552	15,736	--	91,636	106,259	106,463	26,408
Chester	9,867	11,844	10,425	10,127	21,883	22,019	21,351	23,463
Murray	11,464	10,599	12,122	17,887	27,374	28,366	32,599	44,832
Bowen	4,856	4,378	5,019	6,592	13,939	14,734	12,496	7,501
Anna	43,845	36,407	44,867	44,868	55,666	54,726	57,603	64,247
TOTALS	874,886	936,924	962,199	883,313	$1,429,554	$1,567,509	$1,830,928	$1,821,783

-- = No Activity.
NA = Data Not Available.
*Source: Management Cost System, Cost of Operations Report.
**Projected from 9 month data.

TABLE 2

DMHDD FY 1978 Laboratory Cost/Test Estimates

Facility	Facility Lab Workload	Facility Lab Direct Cost	Cost/Test	# of Contracted Tests	Cost of Contracted Tests	Cost/Test	Total # of Tests	Total Direct Costs	Total Cost/Test
Singer	8,950	$ 20,618	$2.30	2,954	$ 22,323	$ 7.56	11,904	$ 42,941	$ 3.61
Dixon	48,176	117,472	2.43	NA	13,090	NC	48,176(1)	130,562	2.71(1)
E. Moline	34,686	59,977	1.72	729	4,416	6.06	35,415	64,393	1.82
Galesburg	39,333	48,700	1.23	NA	4,803	NC	39,333(1)	53,503	1.36(1)
Zeller	15,030	41,039	2.73	273	5,926	21.70	15,303	46,965	3.07
Chicago-Read	208,754	295,914	1.41	497	3,988	8.85	209,251	299,902	1.43
Elgin	82,542	250,520	3.03	11	250	22.72	82,553	250,770	3.04
Ludeman	--	--	--	6,400	55,155	8.62	6,400	55,155	8.62
ISPI	41,457	90,256	2.18	506	7,312	14.45	41,963	97,568	2.33
Shapiro	66,454	85,093	1.28	2,376	36,640	15.42	68,830	121,733	1.77
Madden	50,633	67,972	1.34	208	3,731	17.94	50,841	71,703	1.41
Manteno	97,926	222,650	2.27	988	14,267	14.44	98,914	236,917	2.40
Tinley Park	85,273	99,482	1.17	408	2,578	6.32	85,681	102,060	1.19
Waukegan	--	--	--	1,820	20,113	11.05	1,820	20,113	11.05
Howe	15,117	17,598	1.16	395	3,261	8.26	15,512	20,859	1.34
Jacksonville	20,840	34,694	1.66	1,099	10,915	9.93	21,939	45,609	2.08
Lincoln	46,537	107,999	2.32	486	5,557	11.43	47,023	113,556	2.41
McFarland	7,473	15,973	2.14	731	4,587	6.27	8,204	20,560	2.51
Meyer	--	--	--	1,051	10,357	9.85	1,051	10,357	9.85
Adler	--	--	--	57	520	9.12	57	520	9.12
Fox	4,849	24,459	5.04	--	--	--	4,849	24,459	5.04
Alton	15,736	106,463	6.77	--	--	--	15,736	106,463	6.77
Chester	10,425	21,351	2.05	104	1,087	10.45	10,529	22,438	2.13
Murray	12,122	32,599	2.69	534	6,789	12.71	12,656	39,388	3.11
Bowen	5,019	12,496	2.49	65	644	9.91	5,084	13,140	2.58
Anna	44,867	57,603	1.28	171	2,290	13.39	45,038	59,893	1.33
TOTALS	962,199	$1,830,928	Avg. $1.90	21,863	$240,599	Avg. $10.19(1)	984,062	$2,071,527	Avg. $ 2.11(1)

-- = No Activity.
NA = Data Not Available.
NC = Not Computed.
(1) = Dixon and Galesburg not complete.

TABLE 3

DMHDD FY 1978 Laboratory Tests and Direct Costs
Per Estimated Facility Resident

	Facility	Admissions (ADM)	Average Daily Residents (ADR)	Total ADM & ADR(2)	Total Tests	Total Direct Costs	Average # of Tests Per ADM & ADR	Average Cost of Tests Per ADM & ADR
M	Singer	1,117	158	1,275	11,904	$ 42,941	9	$ 33.68
D	Dixon	18	1,483	1,501	48,176(1)	130,562	32	86.98
M	E. Moline	544	310	854	35,415	64,393	41	75.40
M	Galesburg	142	613	755	39,333(1)	53,503	52	70.86
M	Zeller	1,339	96	1,435	15,303	46,965	11	32.73
M	Chicago-Read	5,502	508	6,010	209,251	299,902	35	49.90
M	Elgin	1,756	731	2,487	82,553	250,770	33	100.83
D	Ludeman	7	361	368	6,400	55,155	17	149.88
M	ISPI	1,127	139	1,266	41,963	97,568	33	77.07
D	Shapiro	7	809	816	68,830	121,733	84	149.18
M	Madden	3,540	244	3,784	50,841	71,703	13	18.95
M	Manteno	1,461	950	2,411	98,914	236,917	41	98.27
M	Tinley Park	3,332	302	3,634	85,681	102,060	24	28.08
D	Waukegan	3	358	361	1,820	20,113	5	55.71
D	Howe	3	359	362	15,512	20,859	43	57.62
D	Jacksonville	23	399	422	21,939	45,609	52	108.03
D	Lincoln	55	955	1,010	47,023	113,556	47	112.43
M	McFarland	537	106	643	8,204	20,560	13	31.98
M	Meyer	176	78	254	1,051	10,357	4	40.78
M	Adler	89	35	124	57	520	<1	4.19
D	Fox	13	172	185	4,849	24,459	26	132.21
M	Alton	734	259	993	15,736	106,463	16	107.21
M	Chester	100	255	355	10,529	22,438	30	63.21
D	Murray	59	550	609	12,656	39,388	21	64.68
D	Bowen	65	187	252	5,084	13,140	20	52.14
D/M	Anna	972	404	1,376	45,038	59,893	33	43.53
	TOTALS	22,721	10,821	33,542	984,062	$2,071,527	Avg. 28	Avg. $ 70.98

M = Mental Health Center, D = Developmental Center
(1) = Dixon and Galesburg not complete.
(2) = Admissions and Average Daily Residents figures were combined to project the maximum number of residents for each facility.

TABLE 4

DMHDD FY 1978 Facility Laboratory Workload and Direct Costs
Per Laboratory Full-Time Equivalent (FTE)*

Facility	Facility Lab Workload	Facility Lab Direct Costs	# of FTE's	# of Tests Per FTE	Direct Cost Per FTE
Singer	8,950	$ 20,618	1.4	6,393	$14,727
Dixon	48,176	117,472	5.8	8,306	20,254
E. Moline	34,686	59,977	3.9	8,894	15,379
Galesburg	39,333	48,700	3.0	13,111	16,233
Zeller	15,030	41,039	2.0	7,515	20,520
Chicago-Read	208,754	295,914	17.7	11,794	16,718
Elgin	82,542	250,520	11.9	6,936	21,052
Ludeman	--	--	--	--	--
ISPI	41,457	90,256	4.9	8,461	18,420
Shapiro	66,454	85,093	4.3	15,454	19,789
Madden	50,633	67,972	4.6	11,007	14,777
Manteno	97,926	222,650	11.4	8,590	19,531
Tinley Park	85,273	99,482	5.2	16,399	19,131
Waukegan	--	--	--	--	--
Howe	15,117	17,598	1.0	15,117	17,598
Jacksonville	20,840	34,694	1.5	13,893	23,129
Lincoln	46,537	107,999	7.3	6,375	14,794
McFarland	7,473	15,973	1.0	7,473	15,973
Meyer	--	--	--	--	--
Adler	--	--	--	--	--
Fox	4,849	24,459	2.0	2,425	12,230
Alton	15,736	106,463	4.0	3,934	26,616
Chester	10,425	21,351	1.0	10,425	21,351
Murray	12,122	32,599	2.0	6,061	16,300
Bowen	5,019	12,496	0.8	6,274	15,620
Anna	44,867	57,603	3.0	14,959	19,201
TOTALS	962,199	$1,830,928	99.7	Avg. 9,651	Avg. $18,364

-- = No Activity.
*Source: Management Cost System, Cost of Operations Report.

TABLE 5

DMHDD FY 1978 Facility Laboratory Staffing
Full-time and (Part-time) Positions*

Facility	Path.	Clinical Lab Supervisor	Lab Tech I	Lab Tech II	Lab Tech III	Microbiologist I	Microbiologist II	Microbiologist III	Microbiologist Super. Micro.	Biochemist I	Biochemist II	Lab Helper & Lab. Assist.	Clerk Typist II	Clerk Typist III	Other	Total
Singer					1										1-Rad Tech III	2
Dixon		1		2(2)												3 (2)
E. Moline		1	(2)	1									1			3 (2)
Galesburg		1		2												3
Zeller	(1)	1		1												2 (1)
Chicago-Read	(1)	1	1	7		1	1			1			2		1-Mental Health Tech III	15 (1)
Elgin	1 (2)	1		5			2				(1)	1	1	1		12 (3)
ISPI				2					1			1				5
Shapiro		1		2			1									4
Madden		1		4												5
Manteno	(1)	1		4	1			1						1		8 (1)
Tinley Park		1		3			1									5
Howe				1												1
Jacksonville		1		1											(1)-Dental Assistant	2 (1)
Lincoln		1	1	1		2							1			6
McFarland				1												1

*Positions in ( ) are part-time.

(continued)

TABLE 5 (cont'd)

DMHDD FY 1978 Facility Laboratory Staffing
Full-time and (Part-time) Positions*

Facility	Path.	Clinical Lab Supervisor	Lab Tech I	Lab Tech II	Lab Tech III	Microbiologist I	Microbiologist II	Microbiologist III	Microbiologist Super. Micro.	Biochemist I	Biochemist II	Lab Helper & Lab. Assist.	Clerk Typist II	Clerk Typist III	Other	Total
Fox						1						1				2
Alton		1														1
Chester								1								1
Murray	(1)			1			1									2 (1)
Bowen				1												1
Anna	(1)	1		1		1										3 (1)
TOTALS	1 (7)	14	2 (2)	40 (2)	2	5	6	2	1	1	(1)	3	6	2	1-Mental Health Tech III 1-Rad Tech III (1)-Dental Assistant 2 (1)	87 (13)

*Positions in ( ) are part-time.

TABLE 6

DMHDD FY 1978
Tests Performed at the Facility (F), by a Contract Laboratory (C), or Both (*)

NAME OF TEST	Singer	Dixon	East Moline	Galesburg	Zeller	Chicago Read	Elgin	Ludeman	ISPI	Shapiro	Manteno	Tinley Park	Waukegan	Howe#	Madden	Jacksonville	Lincoln	McFarland	Meyer	Adler	Fox	Alton	Chester	Murray	Bowen	Anna
CLINICAL CHEMISTRY																										
Acid phosphatase	C	F	F	F		F	F	C	F	F	F	F		F	F	C		C				C				F
Albumin, urine			F			F	F		F	F	C	F		F			F	F								F
Alkaline phosphatase	C	F	F	F	F	F	F	C	F	F	F	F		F	F	*	F	*			F		F	F		F
Amylases	C	F	F	F	C	F	F	C	F	F	F	F		F	F	C			C					*		F
Bilirubin	C	F	F	F	F	F	F	C	F	F	F	F		F	F	*	F	C	C		F		F	F		F
Blood Gases	C	*	C	F		F	F			C		F		F	F							C		F		F
BUN	C	F	F	F	F	F	F	C	F	F	F	F		F	F	*	F	*			F	C	F	F		F
Calcium	C	F	F	F	F	F	F	C	F	C	F	F		F	F	C	F				F		F	F		F
Cholesterol	C	F	F	F	F	F	F	C	F	F	F	F		F	F	F	F	C					F			C
CPK	C	C	C		C	F	F			C	*	F		F	F		F					C				
Creatinine	C	F	F	F	F	F	F	C	F	F	F	F		F	F	C	*		C		F	C	C	F		F
Drug levels and drug screening tests	C	F	C	C	C	C	F	C	C	C	C	C	C	F	C	C	*	C	C			C	C	C		C
Electrolytes (Na, K, Cl)	C	F	F	F	F	F	F	C	F	F	F	F		F	F	C	F	C	C		F	C	F	F		F
Glucose, blood and SF	F	F	F		F	F	F	C	F	F	F	F		F	F	*	F		C		F	C	F	F		F
Glucose, urine			F			F	F		F	F		F		F			F	F							F	F
Iron	C	C	C	C	C	F	F		C	C	C	C		C	F			C	C			C		C		F
Iron binding capacity	C	C	C	C	C	F	F	C	C	C		C		C	F	C		C				C		C		F
LDH	C	F	F	F	F	F	F	C	F	F	*	F		F	F	C	F	*				C	F			F
Lithium	C	F	F	F	F	F	F	C	F	F	F	F			F	C	F	C	C			C	F			F
Occult blood	F	F	F		F	F	F		F	F	F	F		F			F	F			F	C	F	F		F
PBI				C							C	C		C												
Phosphorus	C	F	F	F	F	F	F	C	F	F	*	F		F	F	C	F				F		C			F
PKU		C						C	F			F		F			F	C			F			F		
Pregnancy test	C	F	F	F	F	F	F		F	F	F	F		F	F	C	F	F				C		F		F
Protein, total (A,G,A/G)		F	F	F	F	F	F		F	F	F	F		F	F	F	F						F			F
SGOT	C	F	F	F	F	F	F	C	F	F	F	F		F	F	F	F	*			F	C	F	F		F
SGPT	C	F	F	F	F	F	F	C	F	F	F	F		F	F	F	F	*			F		F	F		F
Triglycerides	C	C	C	C		C			F		C	C		C	F	C	C							C		C
T_3	C	C	C	C	C	F	F	C	F	F	C	C	C	C	F	C	C	C	C			C	C	C		
T_4	C	C	C	C	C	F	F	C	F	F		C	C	C	F	C	C	C	C			C	C	C		C
Uric acid	C	F	F	F	F	F	F	C	F	F	F	F		F	F	F	F					C	F	F		F
Amino acid screen	C							C		C	C															
Vitamin B12	C							C		C	C				C		C					C				

#Tinley Park serves as the facility laboratory.

TABLE 6 (Cont'd)

NAME OF TEST	Singer	Dixon	East Moline	Galesburg	Zeller	Chicago Read	Elgin	Ludeman	ISPI	Shapiro	Manteno	Tinley Park	Waukegan	Howe #	Madden	Jacksonville	Lincoln	McFarland	Meyer	Adler	Fox	Alton	Chester	Murray	Bowen	Anna
Folic acid	C							C		C					C		C									C
TSH																	C					C		C		
Protein electrophoresis																C	C					C				
Heavy metals	C							C																		
SMA 6/60								C										C								
SMA 12/60	C							C					C			C		C	C			C			C	
SMA 18/60								C																		
Chemistry profile																			C							
SMAC-24																						C		C		
Other chemistry tests	C			F		F		C		C	*	F	C	F	*		C		C			C		C	C	C
SEROLOGY																										
Syphilis serology	C	F	F	F	F	F	F	C	F	F	*	F	C	F	F	F	*	C	C		F	C	F	F		F
Other bacterial serol.	C		F			*		C						F	F		F						F	C	C	
Fungal serology						C																				
Parasitic serology						C																				
Viral and rickettsial	C					C					C						C					C				
Infectious mono.				C		F		C		C	C	F		F	F		·	C					F	F		F
Rheumatoid factor	C			C		F		C		F	C	F		F	F		F						F			F
Other serology tests						F																				
HEMATOLOGY/IMMUNOHEMA.																										
Bleeding/clotting time			F	F	F	F	F	C		F	F	F		F	F		F							F		F
Cell indices	F	F	F	F	F	F	F		F	F	F	F		F	F	F	F	*					F	F		F
Complete blood counts		F				F		C	F	F		F	C	F		C			C			C	F		F	F
RBC	F	F	F	F	F	F	F	C	F	F	F	F		F	F	F	F	*			F			F		F
WBC	F	F	F	F	F	F	F		F	F	F	F		F	F	F	F	*	C		F	C	F	F	F	F
Hgb	F	F	F	F	F	F	F	C	F	F	F	F		F	F	F	F	*			F		F	F	F	F
Hct	F	F	F	F	F	F	F		F	F	F	F		F	F	F	F	*			F		F	F		F
Differential	F	F	F	F	F	F	F		F	F	F	F		F	F	F	F	*	C		F		F	F		F
Platelets	F	F	F	F	F	F	F	C	F	F	F	F	C	F	F	C	F	C				C	F	F		F
Prothrombin time		F	F	F	F	F	F	C	F	F	F	F		F	F	C	F					C		F		F
Reticulocyte count	F	F		F	F	F	F	C	F	F	F	F	C	F	F	C	F	C			F			F		F
Sedimentation rate	F	F	F	F	F	F	F	C	F	F	F	F		F	F		F	F			F	C	F	F		F
Sickle cell		C	F		F	F	F	C	F	F	F	F		F	F	C	F		C			C	F	F		F
Typing, crossmatching		C	F	C		F	F				F	F		F	C	C								F	C	
Other hema/immuno tests					F			C		C	*				F							C		*		
URINALYSIS																										
Complete (physical, chemical, microscopic)	F		F	F	F	F	F		F	F	F	F	C	F	F	*	F	*	C			C	F	F	F	F
Partial			F	F	F		F			F	F	F		F									F			
Other urine tests							F				C													F		F

#Tinley Park serves as the facility laboratory.

TABLE 6 (Cont'd)

NAME OF TEST	Singer	Dixon	East Moline	Galesburg	Zeller	Chicago Read	Elgin	Ludeman	ISPI	Shapiro	Mantemo	Tinley Park	Waukegan	Howe #	Madden	Jacksonville	Lincoln	McFarland	Meyer	Adler	Fox	Alton	Chester	Murray	Boven	Anna
TOXICOLOGY																										
Physical samples																										
Pesticides																										
Drugs and narcotics								C	C	C													C			
Paint										C													C			
Biological samples						C			C																	
Blood (includes lead, alcohol tests)	C			C	C			C	C	C	C	F	C	F	C							C		C		
Urine	C				C				C									C				C		C		
Body tissues																										
Body fluids																										
Breath																										
Other toxicology tests																										
PATHOLOGY																										
Autopsy		F				F	F										F				F			F		
Exfoliative cytology (pap smears)	C	F		C	C	F	F		C	C	F				C	C		C	C			C				C
Tissue, surgical		F				F	F				C												C			C
Other pathology tests																										
MICROBIOLOGY																										
Bacteriology																										
Culture, blood	F	F	F			F	F	C	F	F	F	F		F			F				F	C		F		F
Culture, cervical	C	F	F			F	F	C	F			F		F		C	F				F	C		F	C	F
Culture, throat	C	F	F		F	F	F	C	F	F	F	F	C	F		C	F	C	C		F	C	F	F	F	F
Culture, sputum	C	F	F		F	F	F		F	F	F	F		F		C	F	C			F	C	F	F		F
Culture, stool		F	F		F	F	F	C	F	F	F	F	C	F		C	F				F	C		C		F
Culture, urine	F	F	F		F	F	F	C	F	F	F	F	C	F	F	*	F	C	C		F	C	F	F		F
Drug sensitivity		F	F		F	F	F	C		F		F		F	F		F				F	C	F	F		F
Smears/cultures, TB			F			F	F		F	F	F	F		F	C		F					C	*			*
Smears/cultures, GC			F		F	F	F	C	F	F		F		F	F		F									F
Other bact. smears/ cultures/tests		F			*		F	C	F			F				C	C	C						F		F
Mycology																										
Direct exams (+stains)	F	F			F	F	F	C		F		F		F	F		F				F		F			F
Culture		F				F	F	C		F		F		F			F				F	C	*	C		
Parasitology																										
Direct exams, stool	C	F	F	F	F	F	F	C	F	F	F	F	C	F	F	C	F	C			F	C	F	F	C	F
Direct exams, blood						F								F	F									F		
Pinworm slide	C	F	F			F		C		F		F	C	F	F		F				F	C				F
Virology (hepatitis)								C			C						C	C								
Other micro. tests						F	F			F							C						F		F	F

#Tinley Park serves as the facility laboratory.

TABLE 7

DMHDD Laboratory Workload by Major Category
FY 1976 - 1979

Region & Facility	Workload Category	Facility Lab - Annual Testing Workload FY 1976	FY 1977	FY 1978	Projected FY 1979
1A					
	Bacteriology	425	641	181	333
	Parasitology	--	--	--	--
	Serology	12	15	8	5
	Urinalysis	3,814	3,917	2,810	2,361
Singer	Hematology	7,538	7,170	5,464	4,600
	Clinical Chemistry	315	393	487	344
	Pathology	--	--	--	--
	Miscellaneous	--	--	--	--
	Total	12,104	12,136	8,950	7,643
	Bacteriology		14,106	14,701	6,642
	Parasitology		--	--	--
	Serology		757	878	524
	Urinalysis		7,443	7,250	4,385
Dixon	Hematology		13,457	14,393	17,622
	Clinical Chemistry		8,347	10,589	6,627
	Pathology		639	365	--
	Miscellaneous		--	--	--
	Total	NA	44,808	48,176	35,800
1B					
	Bacteriology	2,800	3,164	3,293	2,733
	Parasitology	67	42	25	23
	Serology	1,153	822	651	609
	Urinalysis	15,700	16,231	14,305	11,882
E. Moline	Hematology	10,283	9,412	8,346	6,875
	Clinical Chemistry	6,521	6,742	8,066	7,302
	Pathology	--	--	--	--
	Miscellaneous	--	--	--	--
	Total	36,524	36,413	34,686	29,424
	Bacteriology	1,463	1,560	2,059	1,994
	Parasitology	78	102	143	101
	Serology	706	800	465	632
	Urinalysis	3,926	4,200	3,853	3,563
Galesburg	Hematology	11,169	12,664	11,506	11,326
	Clinical Chemistry	20,600	21,503	21,004	21,110
	Pathology	--	--	--	--
	Miscellaneous	385	418	303	202
	Total	38,224	42,247	39,333	38,928

TABLE 7 (Cont'd)

DMHDD Laboratory Workload by Major Category
FY 1976 - 1979

Region & Facility	Workload Category	Facility Lab - Annual Testing Workload FY 1976	FY 1977	FY 1978	Projected FY 1979
1B					
	Bacteriology	740	969	1,043	934
	Parasitology	--	--	--	--
	Serology	1,883	1,693	1,445	1,415
	Urinalysis	3,965	3,584	2,980	3,115
Zeller	Hematology	6,284	6,499	6,175	6,287
	Clinical Chemistry	3,294	3,557	3,387	3,681
	Pathology	--	--	--	--
	Miscellaneous	--	--	--	--
	Total	16,166	16,302	15,030	15,432
2					
	Bacteriology	6,862	6,092	3,110	3,213
	Parasitology	276	317	114	183
	Serology	7,086	7,290	5,762	5,847
	Urinalysis	10,280	11,295	33,020	25,043
Chicago-Read	Hematology	94,332	91,915	54,136	49,585
	Clinical Chemistry	142,322	137,412	110,508	110,842
	Pathology	2,709	1,989	166	255
	Miscellaneous	2,779	3,311	1,938	2,022
	Total	266,646	259,621	208,754	196,990
	Bacteriology	2,801	3,047	2,874	2,313
	Parasitology	--	--	243	519
	Serology	2,872	2,641	2,428	2,528
	Urinalysis	4,995	4,099	4,501	3,892
Elgin	Hematology	28,017	31,164	25,163	24,984
	Clinical Chemistry	48,494	49,861	46,838	38,852
	Pathology	418	502	495	433
	Miscellaneous	--	--	--	--
	Total	87,597	91,314	82,542	73,521
	Bacteriology	1,168	1,005	629	358
	Parasitology	126	54	12	7
	Serology	2,098	1,529	1,349	1,301
	Urinalysis	4,665	5,509	3,832	3,800
ISPI	Hematology	11,690	10,481	13,334	12,533
	Clinical Chemistry	17,057	18,596	21,793	21,800
	Pathology	95	32	--	--
	Miscellaneous	326	410	508	624
	Total	37,225	37,616	41,457	40,423

TABLE 7 (Cont'd)

DMHDD Laboratory Workload by Major Category
FY 1976 - 1979

Region & Facility	Workload Category	Facility Lab - Annual Testing Workload FY 1976	FY 1977	FY 1978	Projected FY 1979
2					
	Bacteriology	2,562	1,943	2,922	3,564
	Parasitology	391	110	213	148
	Serology	619	1,115	1,630	1,467
	Urinalysis	10,120	6,756	8,661	8,578
Shapiro	Hematology	16,980	19,868	25,672	26,463
	Clinical Chemistry	20,929	23,880	27,005	23,111
	Pathology	511	998	351	97
	Miscellaneous	--	--	--	--
	Total	52,112	54,670	66,454	63,428
	Bacteriology	*	*	1,046	*
	Parasitology			154	
	Serology			3,630	
	Urinalysis			11,264	
Madden	Hematology			14,026	
	Clinical Chemistry			19,678	
	Pathology			--	
	Miscellaneous			845	
	Total	41,047	47,573	50,633	47,578
	Bacteriology	7,279	2,819	4,449	5,166
	Parasitology	629	238	528	316
	Serology	3,235	2,121	3,558	2,475
	Urinalysis	15,555	7,935	20,682	18,035
Manteno	Hematology	24,691	14,445	27,144	24,835
	Clinical Chemistry	38,653	16,968	41,312	37,810
	Pathology	271	94	184	274
	Miscellaneous	33	5	69	118
	Total	90,346	44,625	97,926	89,029
	Bacteriology	3,055	2,863	3,526	3,580
	Parasitology	7	5	22	31
	Serology	4,289	5,220	4,669	4,790
	Urinalysis	14,718	18,490	19,339	17,180
Tinley Park	Hematology	21,851	24,305	24,559	23,395
	Clinical Chemistry	21,916	25,444	28,265	28,184
	Pathology	--	--	--	--
	Miscellaneous	3,937	4,525	4,871	4,588
	Total	69,773	80,852	85,273	81,748

TABLE 7 (Cont'd)

DMH DD Laboratory Workload by Major Category
FY 1976 - 1979

Region & Facility	Workload Category	Facility Lab - Annual Testing Workload FY 1976	FY 1977	FY 1978	Projected FY 1979
2					
Howe	Bacteriology	668	370	451	1,686
	Parasitology	114	21	27	134
	Serology	319	418	1,016	762
	Urinalysis	1,632	1,772	1,688	3,100
	Hematology	2,400	2,696	5,046	5,055
	Clinical Chemistry	4,446	4,527	6,381	8,404
	Pathology	--	--	--	--
	Miscellaneous	468	432	508	958
	Total	10,047	10,236	15,117	20,099
3A					
Jacksonville	Bacteriology	--	--	--	--
	Parasitology	--	--	--	--
	Serology	805	1,137	1,253	943
	Urinalysis	852	866	460	1,035
	Hematology	6,010	5,672	8,045	10,420
	Clinical Chemistry	7,219	9,274	11,015	10,193
	Pathology	--	--	--	--
	Miscellaneous	134	107	67	44
	Total	15,020	17,056	20,840	22,635
Lincoln	Bacteriology		5,500	5,852	2,527
	Parasitology		5,500	4,788	3,177
	Serology		2,000	1,118	858
	Urinalysis		4,000	6,443	3,538
	Hematology		16,000	14,728	11,262
	Clinical Chemistry		15,500	13,434	9,052
	Pathology		10	5	3
	Miscellaneous		180	169	93
	Total	NA	48,690	46,537	30,510
McFarland	Bacteriology	--	--	--	--
	Parasitology	--	--	--	--
	Serology	705	649	637	517
	Urinalysis	7,642	3,199	805	2,096
	Hematology	3,537	3,432	3,085	2,494
	Clinical Chemistry	2,844	1,705	2,946	1,643
	Pathology	--	--	--	--
	Miscellaneous	--	--	--	--
	Total	14,728	8,985	7,473	5,750

TABLE 7 (Cont'd)

DMH DD Laboratory Workload by Major Category
FY 1976 - 1979

Region & Facility	Workload Category	Facility Lab - Annual Testing Workload FY 1976	FY 1977	FY 1978	Projected FY 1979
3B					
	Bacteriology			360	261
	Parasitology			552	591
	Serology			144	78
	Urinalysis			1,848	1,163
Fox	Hematology			1,620	1,326
	Clinical Chemistry			324	481
	Pathology			--	--
	Miscellaneous			1	1
	Total	NA	NA	4,849	3,901
4					
	Bacteriology	1,896	1,724	1,229	**
	Parasitology	--	--	--	
	Serology	669	771	752	
	Urinalysis	1,450	1,400	1,200	
Alton	Hematology	6,000	5,900	4,200	
	Clinical Chemistry	7,000	10,500	8,100	
	Pathology	280	257	255	
	Miscellaneous	--	--	--	
	Total	17,295	20,552	15,736	
	Bacteriology	218	326	369	263
	Parasitology	--	--	--	--
	Serology	881	1,050	949	778
	Urinalysis	1,695	2,273	1,996	2,059
Chester	Hematology	1,127	1,313	1,325	898
	Clinical Chemistry	5,936	6,872	5,778	6,069
	Pathology	10	10	8	60
	Miscellaneous	--	--	--	--
	Total	9,867	11,844	10,425	10,127
	Bacteriology	2,070	1,995	2,881	5,151
	Parasitology	350	233	187	120
	Serology	528	339	390	406
	Urinalysis	1,327	1,125	1,206	2,031
Murray	Hematology	6,832	6,476	6,946	9,422
	Clinical Chemistry	305	387	473	678
	Pathology	5	4	2	1
	Miscellaneous	47	40	37	78
	Total	11,464	10,599	12,122	17,887

TABLE 7 (Cont'd)

DMHDD Laboratory Workload by Major Category
FY 1976 - 1979

Region & Facility	Workload Category	Facility Lab - Annual Testing Workload FY 1976	FY 1977	FY 1978	Projected FY 1979
5					
	Bacteriology	927	863	607	712
	Parasitology	29	39	2	9
	Serology	--	--	--	--
	Urinalysis	1,289	898	1,126	1,286
Bowen	Hematology	2,600	2,560	3,270	4,570
	Clinical Chemistry	2	7	7	11
	Pathology	--	--	--	--
	Miscellaneous	9	11	7	4
	Total	4,856	4,378	5,019	6,592
	Bacteriology	3,109	3,401	3,144	3,417
	Parasitology	--	--	--	--
	Serology	1,513	1,487	1,660	1,605
	Urinalysis	15,721	10,296	15,610	16,009
Anna	Hematology	10,194	8,594	12,165	12,070
	Clinical Chemistry	12,767	12,123	11,769	11,257
	Pathology	346	383	340	295
	Miscellaneous	195	123	179	215
	Total	43,845	36,407	44,867	44,868
ALL FACILITY LABS		874,886	936,924	962,199	883,313

NA = Data Not Available.
-- = No Activity.
* = Breakdown Not Available by Category.
** = Facility Lab Services Discontinued.

Region 1A

The two DMHDD residential facilities in this region are the Singer Mental Health Center (Rockford) and the Dixon Developmental Center (Dixon). Each facility has its own clinical laboratory.

Singer Mental Health Center

The Singer Mental Health Center provides short-term inpatient services to mentally ill, developmentally disabled and alcoholic persons. This facility also offers specialized residential services for children and adolescents. The Center is currently accredited for both its psychiatric and developmental disabilities programs. Community programs control access to Singer and provide most of the after-care programming for mentally ill and alcoholic persons. Acutely physically ill or surgical patients are referred to local hospitals. The Average Daily Resident census is 158 and the annual Admissions are 1,117.

The clinical laboratory supervisor is a radiation technician. The other staff member is a lab technician. The laboratory area is approximately 240 square feet. There is no additional space available for use by this laboratory.

Most of the clinical laboratory services are in the areas of hematology and urinalysis. The Rockford Memorial Hospital laboratory is utilized for most laboratory tests, primarily chemistries, which are not performed on-site. GC cultures and VDRL tests are sent to the Winnebago County Health Department laboratory.

The Singer Mental Health Center is the only DMHDD facility that separates the cost figures for facility laboratory services and contractual laboratory services in the Management Cost System - Cost of Operations Report. Contractual laboratory tests are an estimated 28% (FY 1979) of the total workload of this laboratory and represent 43% (FY 1979) of the total laboratory annual expenditures.

Dixon Developmental Center

The Dixon Developmental Center provides long-term treatment and rehabilitation services for developmentally disabled residents. Most of the residents are severely or profoundly retarded; approximately 25 percent of the residents are semi-ambulatory or non-ambulatory. Dixon offers specialized programs for the deaf retarded and deaf-blind retarded.

At present under court order no new patients can be admitted unless moderately or severely MR plus blind and deaf. Physician services are on a contractual agreement basis. The Average Daily Resident census is the highest in the Department--1,483 individuals, while the estimated Admission rate is only 18 individuals per year.

A clinical laboratory supervisor directs this laboratory with two full-time and two, one-half time, laboratory technicians. In March, 1978, the facility contracted with a private pathologist group (Sauk Valley Pathology Associates) to provide laboratory services after daily work hours (4:30 p.m. - 8:00 a.m.) and 24-hour coverage for weekends and holidays. This reduced the staffing from seven to four technicians. The total laboratory space (4,116 square feet) therefore, includes all of the space utilized by the laboratory prior to the development of the contract. The current laboratory utilizes approximately 1,682 square feet of the available space.

Workload for this facility laboratory has declined, reflecting the shift toward contracting with the local pathologist group. No workload estimates were available for these contracted tests. Cost figures for the contract were $13,090 (3 months, FY 1978) and $39,060 for FY 1979. The FY 1979 contract includes all pathology services (autopsies, tissue exams, slides, etc.) and a provision for an annual SMA 12/60 chemistry profile on all residents. At the present time, negotiations are underway with the community hospital laboratory and a private laboratory to provide the total facility laboratory services. This facility is also currently considering dropping their acute medical-surgical services in favor of contracting with a local community hospital for these services.

The MCS cost estimates for this facility's laboratory services reflect a large increase in staff FY 1976 - 1.9 FTE to FY 1977 - 7.8 FTE and, subsequent to the local laboratory contract, the drop to 4.3 FTE in FY 1979.

Region 1B

The three DMHDD residential facilities in this region are: The East Moline Mental Health Center (East Moline); the Galesburg Mental Health Center (Galesburg); and, the Zeller Mental Health Center (Peoria). Each facility has its own clinical laboratory.

East Moline Mental Health Center

The East Moline Mental Health Center provides short-term and long-term treatment programs for mentally ill inpatients. East Moline provides specialized residential services for mentally ill geriatrics (persons age 65 and over). The facility is currently accredited for its psychiatric services. Plans to close the facility are in process. The Average Daily Resident census is 310. The annual Admissions for this facility are estimated to be 544 persons.

The laboratory staff consists of the clinical laboratory supervisor, a laboratory technician and a clerk typist. In addition, two laboratory technicians have been hired on a half-time basis to cover weekend work. The laboratory supervisor also serves as the Public Health Officer for the facility.

The clinical laboratory utilizes an estimated 2,085 square feet. Additional space, adjacent to the laboratory could be converted into suitable laboratory space.

The laboratory provides a wide range of testing services on-site. Contractual laboratory services are sent to private laboratories in the community. In spite of the plans to close this facility, the laboratory workload and cost have remained relatively constant for the past three fiscal years. The increased workload and cost for FY 1979 reflect the use of more contractual laboratory services.

Galesburg Mental Health Center

The Galesburg Mental Health Center provides short-term and long-term treatment and rehabilitation services to mentally ill and developmentally disabled inpatients. Galesburg offers specialized residential services for mentally ill children and adolescents. By FY 1980, the population of mentally ill inpatients is expected to decrease while the number of developmentally disabled residents is expected to increase. Galesburg continues to provide specialized residential services for adult

mentally ill persons. Galesburg received accreditation in 1979 for both the psychiatric and developmental disabilities programs from the Joint Commission on Accreditation of Hospitals. The Average Daily Resident census is 613 and the estimated annual number of Admissions is 142 individuals.

The clinical laboratory staff consists of one clinical laboratory supervisor and two laboratory technicians. The total space currently being utilized by the laboratory is approximately 4,610 square feet. Additional space is available to expand the laboratory service area.

The laboratory provides a wide range of services on-site. Contractual services are primarily provided by Met Path Laboratory in Springfield and ICM in Portland, Oregon.

While the workload figures for this laboratory have remained constant for the past four fiscal years, the cost has increased over 30%. As is the case with many of the Department's laboratory operations, these increases reflect the increased trend toward more reliance on contractual laboratory services.

A major consideration affecting this facility will be the transfer of residents from East Moline. The clinical laboratory is housed in ancient laboratory space. Additional staff, upgrading of equipment and space will be necessary to enable this laboratory to meet the increased testing needs for additional facility residents.

Zeller Mental Health Center

The Zeller Mental Health Center provides short-term intensive treatment and rehabilitation services for mentally ill, alcoholic inpatients. A specialized program for geriatric inpatients is also offered at Zeller, which is currently accredited for its services. Day care programs are provided for adults--serving to prevent unnecessary hospitalization. The Average Daily Resident census is 96 and the estimated annual number of Admissions is 1,339 individuals.

The clinical laboratory is staffed by a clinical laboratory supervisor and a Laboratory Technician II. The services of a consulting pathologist are available to this laboratory on a part-time basis.

The current laboratory space is limited to two rooms totaling 449 square feet. An additional room could be made available for laboratory expansion, if space was needed.

The clinical laboratory provides most of the requested laboratory tests on-site. The consulting pathologist is from the St. Francis Hospital laboratory. This laboratory provides most of the contractual laboratory service needs. Additional contractual laboratory tests are sent to Reference Laboratory in California.

The laboratory testing workload has remained constant over the past four fiscal years. However, during this same time period, the direct cost of the laboratory operation has increased over 34%.

Region 2

There are twelve DMHDD facilities in this region, seven of which have clinical laboratories (*).

*Chicago-Read Mental Health Center - Chicago

*Elgin Mental Health Center - Elgin

Elizabeth Ludeman Developmental Center - Park Forrest

Illinois Institute for Developmental Disabilities (IIDD) - Chicago

Illinois Institute for Juvenile Research (IIJR) - Chicago

*Illinois State Psychiatric Institute (ISPI) - Chicago

*Shapiro Developmental Center - Kankakee

*John J. Madden Mental Health Center - Hines

*Manteno Mental Health Center - Manteno

*Tinley Park Mental Health Center - Tinley Park

Waukegan Developmental Center - Waukegan

William A. Howe Developmental Center - Tinley Park

Chicago-Read Mental Health Center

The Chicago-Read Mental Health Center provides short-term intensive treatment and rehabilitation services for mentally ill and developmentally disabled. The Henry Horner Children's Center offers specialized residential treatment for children and adolescents. Chicago-Read is currently accredited for its services. Because of its short-term care arrangement, this facility has the largest annual Admission rate (5,502) of all the Department's facilities. The Average Daily Resident census is 508.

The clinical laboratory is the largest in the Department with a staff of 15 full-time employees and a part-time physician. There are 6,638 square feet of laboratory space providing ample opportunity for expansion of services.

As expected, this laboratory has the largest workload volume of all the facility laboratories. Very few tests are contracted out to other laboratories. For FY 1979, this laboratory accounts for 22% of the total DMHDD laboratory testing workload and 17% of the total direct cost of laboratory operations for the Department.

Elgin Mental Health Center

The Elgin Mental Health Center provides short-term and long-term treatment and rehabilitation services to mentally ill inpatients. Elgin

offers specialized residential services for mentally ill geriatrics. It also has a 40-bed alcoholism service and a 40-bed unit for "Acting Out" MR patients. The facility has an annual Admissions rate of 1,756 persons and maintains an Average Daily Resident census of 731.

The clinical laboratory has a staff of twelve full-time employees. Of the three part-time employees, two are physicians. The laboratory currently utilizes 5,723 square feet of space. If necessary, additional space could be utilized to expand this laboratory.

The clinical laboratory provides almost all of the required laboratory testing needs. In FY 1978, only eleven tests were sent out to other providers at a total cost of $250.

Elizabeth Ludeman Developmental Center

The Ludeman Developmental Center provides treatment and rehabilitation services to developmentally disabled children and adolescents. Most residents are ambulatory and classified as severely or profoundly retarded. Ludeman is currently accredited and uses a local hospital for acute medical care services. The facility has a very limited annual Admission rate (7), and maintains an Average Daily Resident census of 361.

This facility does not have a clinical laboratory. Most of the needed laboratory services are contracted to a local hospital's laboratory, St. James Hospital, which also provides a majority of the facility's medical care services. Other contractual laboratory services are provided by Gibb's Laboratory (EEG, Anticonvulsive Drug Screen).

The number of contractual laboratory services has increased over the past four fiscal years. This increase has produced a 9% rise in the cost of contractual laboratory services (FY 1976 - FY 1978). At the time of the on-site review in May, discussions were being initiated to determine the potential use of the Tinley Park facility laboratory as a provider for some laboratory tests now currently being contracted out.

Illinois Institute for Developmental Disabilities

The Illinois Institute for Developmental Disabilities provides research and training clinical programs to meet needs of state-operated and state-supported agencies delivering services to the developmentally disabled. This facility provides program services in affiliation with the University

of Illinois to outpatients only. The facility utilizes the Illinois State Psychiatric Institute (ISPI) for all of its laboratory service needs.

Illinois Institute for Juvenile Research

The Institute for Juvenile Research is involved in professional training, research and demonstration activities directed to improving the quality and increasing the quantity of child and adolescent services state-wide. It also houses the Office of Program and Policy Planning for children and adolescents. The Institute has no in-patients.

The only laboratory needs for this Institute are for employee physicals. These are obtained from ISPI.

Illinois State Psychiatric Institute

The Illinois State Psychiatric Institute provides services to mentally ill persons. The service program carried out includes a psychiatric residency program, a forensic psychiatry program, and a laboratory of biological psychiatry. An adolescent program provides fifteen beds in a residential setting in conjunction with outpatient services for disturbed persons 13 to 18 years of age. The services provided at ISPI are accredited. It is the only state operated facility that provides a psychiatric residency program. This facility has an annual Admission rate of 1,127 and an Average Daily Resident census of 139.

The clinical laboratory has a staff of five full-time employees. The Microbiologist I is the laboratory supervisor. The laboratory utilizes 1,764 square feet of space and currently does not have room for expansion.

The laboratory meets nearly all of the testing service needs, even though it is a totally manual operation. Very few tests are contracted out (506 in FY 1978). The workload has remained almost constant over the past four fiscal years (9% increase). During this same time period, the direct cost of laboratory operation has increased 13%.

The proposed future move of the Tinley Park Hospital facility residents to the ISPI complex will have a direct effect on the testing support needs of this facility. At the present time, the Tinley Park laboratory provides twice the number of laboratory tests (81,748) than are currently being provided by the ISPI laboratory (40,423).

Shapiro Developmental Center

The Shapiro Developmental Center provides long-term treatment and rehabilitation services to severely or profoundly retarded adult residents. Approximately 25 percent of the resident population is semi-ambulatory or non-ambulatory. The facility is currently accredited. Local hospitals are used for acute care services. The annual Admission rate for this facility is 7. The Average Daily Resident census is the fourth largest in the Department--809 residents.

The clinical laboratory staff consists of a clinical laboratory supervisor and three full-time employees. The current available space is 2,006 square feet. Additional space is available for expansion.

The laboratory provides most of the laboratory testing needs of the facility. In FY 1978, 2,376 tests were provided by contractual laboratories (3% of total workload). The testing volume has increased 22% over the past four fiscal years. During this same time period, the cost of operating this laboratory has increased only 10%.

There is a formal signed agreement between the Shapiro and Manteno Centers regarding laboratory services and supplies (See Attachment #1). This agreement has been very effective over the past two years in helping both laboratories meet testing needs.

An informal agreement exists between the Shapiro laboratory and the Fox Developmental Center laboratory for supply shortages or technical consultation.

John J. Madden Mental Health Center

The Madden Mental Health Center provides short-term (under 90 days) residential services for mentally ill children, adolescents and adults. Residential services for the developmentally disabled are also offered. Madden is accredited for both psychiatric and developmental disabilities services. Acute medical/surgical is referred to the Medical Dental School and Hospital of Loyola University. The annual Admissions to this facility is estimated to be 3,540 persons. This high rate reflects the short-term care arrangement. The Average Daily Resident census is 244 residents.

The clinical laboratory has a full-time clinical laboratory supervisor and four full-time Laboratory Tech II employees. The laboratory is small

(827 square feet) and does not have additional space available for expansion. A clerical position has been approved for FY 1980.

The laboratory provides most of the facility laboratory testing requests. In FY 1978, 208 tests were contracted out representing only 0.4% of the total workload requests. Contractual laboratory services are provided by Loyola University schools and hospital which is located nearby. The Chicago-Read laboratory as well as the Chicago State Public Health laboratory are also utilized for services. In the past four fiscal years, the laboratory workload has increased 16%. During this same time period, the cost of operating the laboratory has increased 100%. Most of the increased cost is attributable to the purchase of automated equipment.

Anticipated increases in the resident population will require an increase in all laboratory testing services.

Manteno Mental Health Center

The Manteno Mental Health Center provides long-term treatment and rehabilitation services to mentally ill inpatients. Specialized programs for the elderly are also offered. Manteno is not accredited. It maintains an infirmary for moderately ill and post-op patients only. The annual Admissions to this facility are estimated to be 1,461 residents. The Average Daily Resident census of 950 individuals is the third largest of the Department's facilities and reflects the long-term care arrangement of this facility.

The clinical laboratory has eight full-time employees and a part-time pathologist. The laboratory currently utilizes an estimated 2,419 square feet of space. Additional space is available if expansion of services require it.

The laboratory provides most of its own facility's testing service needs. In FY 1978, 988 tests (1% of total workload) were contracted out to the Mason-Barrow laboratories. The laboratory testing workload has remained very constant over the past four fiscal years, showing only a 1.5% decrease in a volume of 89,000 tests. The cost of operating this laboratory has decreased 9.6% in the same four-year period.

Tinley Park Mental Health Center

The Tinley Park Mental Health Center provides short-term and intermediate-term treatment services to mentally ill inpatients. The facility

is currently not accredited. The estimated annual Admissions for this facility are 3,332 residents. The Average Daily Resident census is 302 residents.

The clinical laboratory has one supervisor and four full-time employees. One additional full-time employee is funded by Howe. Currently, 3,780 square feet are utilized by this laboratory. Additional space which could be converted to laboratory use is available.

The laboratory not only provides most of the facility's laboratory testing needs, but it also provides direct support to the Howe Center. In FY 1978, only 408 tests were contracted out. This represents only 0.5% of the laboratory testing workload. For that same period, the Tinley Park laboratory provided 15,117 tests for the Howe Center and referred out to a contract laboratory 395 tests for Howe. Summed together, the Tinley Park and Howe laboratory workload is slightly over 100,000 tests per year (FY 1979 estimates). During this same period, Tinley Park laboratory test requests have increased 17.2% while those from Howe have increased 100%.

The cost of operating the Tinley Park laboratory has increased 43% in the last four fiscal years. This reflects the increases in personnel as well as supply and equipment costs.

The service area for this facility has recently been reduced. Another change facing this facility is the proposed (FY 1980) move of the residents to the West Side Medical Center IIDD site. The Region 2 Coordinator for Developmental Disabilities would like to continue utilizing the Tinley Park laboratory facility to support Howe and perhaps other DD facility needs.

Waukegan Developmental Center

The Waukegan Developmental Center provides treatment and rehabilitation services to developmentally disabled children, adolescents and adults. The residents of Waukegan are ambulatory and severely or profoundly retarded. Waukegan is currently eligible for the accreditation survey. The annual number of Admissions to this facility is the lowest in the Department--3. The Average Daily Resident census is 358 residents.

This facility does not have an on-site laboratory. It contracts with a local laboratory, Standard Bio-Medical Laboratory, for testing services. This laboratory provides blood drawing services, pick-up, and delivery of results.

The number of tests (FY 1978) was estimated to be 1,800. Contractual laboratory services cost $20,113 for this same period. Computed cost/test figures ($11.05) are the highest for the Department's facilities. Some of the cost in these figures can be attributed to the provision of total services (blood drawing in addition to laboratory testing services).

William A. Howe Developmental Center

The Howe Developmental Center provides treatment and rehabilitation services to developmentally disabled adults. All residents are ambulatory and severely or profoundly retarded. The estimated annual Admission number is also the lowest (along with Waukegan) in the Department--3. The Average Daily Resident census is 359 residents.

This facility does not have an on-site clinical laboratory. It receives all these services from the Tinley Park laboratory adjacent to this facility. The Howe Center provides funds for a Laboratory Tech II position in the Tinley Park laboratory. Additional funds are provided for supplies, equipment, and contractual laboratory services that the Tinley Park laboratory cannot provide and sends out to a private laboratory. All of the laboratory testing needs are provided by Tinley Park. The accounting and workload recording system at Tinley Park has provided detailed figures on the extent of the Howe Center's laboratory support and costs. Workload has increased 100% from FY 1976 - FY 1979 (10,047 - 20,099 tests).

Region 3A

There are three DMHDD facilities in this region: Jacksonville Mental Health and Developmental Center in Jacksonville; Lincoln Developmental Center in Lincoln; and, McFarland Mental Health Center in Springfield. All of the facilities have a clinical laboratory.

Jacksonville Mental Health and Developmental Center

The Jacksonville Mental Health and Developmental Center provides short-term treatment for mentally ill adolescents and long-term treatment and rehabilitation services for mentally ill and developmentally disabled adults. Jacksonville is currently accredited for both its psychiatric and developmental disabilities services. The annual Admission rate is estimated to be 23 residents. The Average Daily Resident census is 399 residents.

The laboratory is directed by a full-time clinical laboratory supervisor. A full-time Laboratory Tech II and a part-time Dental Assistant are the other staff members. The laboratory space is 1,196 square feet, and there is additional space for laboratory expansion.

Workload for this laboratory has increased 51% over the past four fiscal years at a rate of approximately 2,000 tests per year. The laboratory is capable of meeting most of the test requests it receives in the areas of serology, urinalysis, and hematology. Contractual laboratory services are primarily with the Passavant Memorial Hospital Laboratory for all bacteriology, some chemistry tests (SMA 12/60 screens, etc.), and all Pap smears. Drug screens and levels are sent to the Lincoln Developmental Center Laboratory. In FY 1978, contractual tests amounted to 1,099 or approximately 5.3% of the laboratory's annual workload.

The cost of operation of this laboratory has increased 84% over the past four fiscal years. This is primarily due to the increase in staff (1.0 FTE to 2.3 FTE) over this same time period.

The agreement between the Jacksonville laboratory and the Lincoln laboratory is for Lincoln to provide laboratory testing for Dilantin and Phenobarb. In return, the Jacksonville laboratory purchases one testing kit per year for Dilantin and Phenobarb and supplies this to the Lincoln laboratory. The agreement will be discussed in further detail in the Lincoln laboratory section.

Lincoln Developmental Center

The Lincoln Developmental Center provides long-term residential treatment and rehabilitation services for developmentally disabled persons. Lincoln's staffing level and programming met accreditation requirements in 1977. The annual Admissions to this facility is estimated to be 55 residents. The Average Daily census is the second highest of the Department's facilities--955 residents.

The laboratory is directed by a clinical laboratory supervisor and a staff of five full-time employees. An estimated 1,892 square feet of laboratory space is currently in use. Although there is no additional space for laboratory expansion, the laboratory director stated that the existing space could be utilized more fully.

This laboratory provides a wide range of testing services and is able to handle most of the facility requests. In FY 1978, 486 tests were contracted out representing 1% of the laboratory's annual workload. Annual workload figures for this laboratory were difficult to assemble. Therefore, the 34% decrease from FY 1978 - FY 1979 (Table 1) may not be accurate.

Figures for the cost of operating this laboratory were only available for the past three fiscal years. They indicate a relatively constant cost decreasing only 3% from FY 1977 - FY 1979.

The laboratory director is actively seeking to increase the testing workload for his laboratory. The agreement between Lincoln and Jacksonville benefitting both facilities was initiated by the Lincoln laboratory director. He has also suggested that his laboratory perform the laboratory testing for a nearby correctional institution. This suggestion was not implemented.

Andrew McFarland Mental Health Center

The Andrew McFarland Mental Health Center provides short-term inpatient treatment and rehabilitation services for mentally ill children and adults, developmentally disabled children and adults and alcoholic persons. McFarland is currently accredited for all its programs. Acute medical/surgical problems are not treated at the facility. The annual Admissions to this facility are estimated to be 537 residents. The Average Daily Resident census is 106 residents.

The clinical laboratory has very little space (383 square feet) and is staffed by only one full-time Laboratory Tech II.

The laboratory provides limited testing services primarily in urinalysis, hematology and chemistry. The annual workload has decreased 54% over the past four fiscal years. This decrease is probably due to a difference in record keeping procedures of the previous laboratorian and the current laboratory technician. Contractual laboratory services are provided by St. John's Hospital laboratory. St. John's also provides the services of a consulting pathologist (approximately 4 hours/month), and laboratory coverage for the facility when the laboratory technician is on vacation. The laboratory technician delivers specimens to St. John's Hospital and returns with the testing reports. In FY 1978, a total of 731 tests were contracted out. This represents 10% of the laboratory's annual workload.

Operating costs for this laboratory have decreased 23% over the past four fiscal years.

Region 3B

There are three DMHDD facilities in this region: Adolf Meyer Mental Health Center in Decatur; Herman M. Adler Mental Health Center in Champaign; and, William W. Fox Developmental Center in Dwight. The Fox Center is the only regional facility with a laboratory.

Adolf Meyer Mental Health Center

The Adolf Meyer Mental Health Center provides short-term inpatient services for mentally ill adolescents and adults and developmentally disabled adults. Meyer is accredited for its services. The annual Admissions to this facility are estimated to be 176 residents. The Average Daily Resident census is 78 residents making this facility one of the smallest in the Department.

There is no clinical laboratory, therefore, all testing services have to be contracted out. In FY 1978, a total of 1,051 tests were sent to these laboratories at a cost of $10,357. This facility utilizes the Central Clinical Laboratories (majority of test requests), Decatur Memorial Hospital, or St. Mary's Hospital for contractual laboratory services.

All acute medical care for this facility is provided under contract with a local physician group. Thus, any change in the laboratory system would have a direct impact on the total medical care system developed at Meyer.

Herman M. Adler Mental Health Center

The Herman M. Adler Mental Health Center is accredited for its services. The annual number of Admissions to this facility is the smallest for all of the mental health centers--89 residents. The Average Daily Resident census is the smallest for all the DMHDD facilities--35 residents.

There is no clinical laboratory at this facility. All laboratory services are performed by the Carle Clinic under a contractual arrangement which includes all medical services. In FY 1978 an estimated 57 laboratory tests were performed for $520 as part of this contract. Thus, Adler resembles Meyer in that any change in laboratory procedures would impact directly on the total medical care system of the facility.

William W. Fox Developmental Center

The William W. Fox Developmental Center provides long-term residential treatment and rehabilitation services for non-ambulatory disabled children and adolescents. The annual Admissions to this facility are estimated to be 13 residents and the Average Daily census is 172 residents.

The two full-time staff for this facility laboratory are a Microbiologist I who directs the laboratory, and a laboratory assistant. The laboratory has 1,066 square feet of space with little additional space for expansion.

The annual laboratory workload figures for this facility were difficult to assemble, because of the inavailability of reports prior to the current laboratory director's arrival. The laboratory performs all tests wanted by the facility's Medical Director. Although there are no tests paid for on a contractual basis, the State's Public Health Laboratories are utilized for blood lead and drug level tests. While the workload appears to be decreasing (20% FY 1978 - FY 1979), the cost of operating this laboratory has remained relatively constant over the past four fiscal years decreasing only 5.7% (approximately $1,400).

The laboratory director has an informal supply arrangement with the Shapiro laboratory. Shapiro will help with technical advice or assist with supply shortage problems.

Region 4

There are three DMHDD facilities in this region: Alton Mental Health Center in Alton; Chester Mental Health Center in Chester; and, Warren G. Murray Developmental Center in Centralia. All facilities have clinical laboratories.

Alton Mental Health Center

The Alton Mental Health Center provides short-term and long-term residential treatment and rehabilitation services for mentally ill and developmentally disabled adults. Alton is accredited for both its psychiatric and developmental disabilities programs. The annual Admissions to this facility are 734 and the Average Daily Resident census is 259 residents.

There is one full-time employee, a clinical laboratory supervisor, at this facility. An estimated 1,060 square feet of laboratory space is available for use.

This facility has not operated a clinical laboratory from July 1, 1978, to date. At that time, a decision was made to contract all laboratory services to the Smith Kline Clinical Laboratory in St. Louis. The clinical laboratory supervisor collects the specimens and a courier from the Smith Kline laboratory picks up the specimens and transports them to the laboratory in St. Louis.

The cost of operating this laboratory in FY 1978 (4 employees) was $106,463. Under the current contract, an estimated $37,697 will be paid in FY 1979 for laboratory services. To this figure must be added the $26,408 FY 1979 facility laboratory cost estimates for a total of $64,105 or an annual savings of $42,000.

It should be noted, however, that in FY 1978 Alton had the highest cost per test ($6.77) of all the facilities. The average cost per test for all facilities was $1.90 during that period.

Chester Mental Health Center

The Chester Mental Health Center provides treatment and rehabilitation services for adolescents and adult male inpatients under maximum security conditions. The new facility opened during the summer of 1975. Most patients are long term, 6+ months. The annual Admissions to this facility are estimated to be 100 residents. The Average Daily Resident census is

255 residents. The laboratory has only one employee, a full-time Microbiologist III. The laboratory space is 285 square feet. There is no additional space for expansion.

The laboratory provides a limited variety of testing services and contracts with the International Clinical Laboratory in St. Louis to provide additional tests. Workload for this laboratory has remained very constant over the past four fiscal years increasing only 260 tests or 2.6%. The number of contractual tests for FY 1978 was 104 or 1% of the laboratory's annual workload.

The cost of operating this laboratory has also remained fairly constant over the past four fiscal years changing only 7%.

This facility also has a contract with ICL to provide technical consultation and training to their Microbiologist III. The cost for this service was reported to be $2,100 for the current year.

Warren G. Murray Developmental Center

The Warren G. Murray Developmental Center provides short-term treatment for mentally ill children and adolescents. In FY 1978, staffing levels and programming at Murray met accreditation standards. The annual Admissions to this facility are 59 residents. The Average Daily Resident census is 550 residents.

The laboratory staff is comprised of a full-time Laboratory Tech II and a full-time Microbiologist II. A consulting pathologist is on a part-time basis. There is an estimated 776 square feet of laboratory space currently in use. Some additional laboratory space is available.

The clinical laboratory provides a limited range of services. All test requests that cannot be completed in the facility laboratory are contracted out to the Consolidated Biomedical Laboratory in Wichita, Kansas. In FY 1978, a total of 534 tests (4% annual workload) were contracted out.

Over the past four fiscal years the laboratory testing workload for this facility has increased 56% and the cost of operating this laboratory has increased 64%.

Region 5

There are two DMHDD facilities in this region: A. L. Bowen Developmental Center in Harrisburg; and, Anna Mental Health and Developmental Center in Anna. Both facilities have clinical laboratories.

A. L. Bowen Developmental Center

The A. L. Bowen Developmental Center provides short-term treatment services for mentally ill children and long-term treatment services for developmentally disabled children. The annual Admissions to this facility are 65 residents. The Average Daily Resident census is 187 making this one of the smaller resident facilities in the Department.

A full-time Laboratory Tech II is the only facility laboratory staff member. The laboratory utilizes approximately 497 square feet of space. Additional laboratory space is not available.

The clinical laboratory provides a very limited variety of testing services. The workload has increased 36% from FY 1976 - FY 1979. In FY 1978, an estimated 65 tests were contracted out to Reference Laboratory in California. The laboratory also utilizes the State Public Health Laboratory for GC and syphilis tests. Some bacteriology laboratory tests are also sent to the Anna facility laboratory.

The cost of operating this laboratory is shown as decreasing (Table 1) over the past four fiscal years. In the MCS - Cost of Operations Report for FY 1979, the laboratory is shown as having 0.5 FTE. The Laboratory Tech II position for the facility laboratory is a full-time position with a salary of approximately $12,000 per year. If this is the source of the MCS error, then the cost of operating this laboratory is similar to the $12,496 for the previous fiscal year (FY 1978).

Anna Mental Health and Developmental Center

The Anna Mental Health and Developmental Center provides short-term and long-term treatment and rehabilitation services for mentally ill and developmentally disabled adults. Anna is currently accredited for both its psychiatric and developmental disabilities services. The annual Admissions to this facility are estimated to be 972 residents. The Average Daily Resident census is 404 residents.

The clinical laboratory has three full-time employees (1 clinical laboratory supervisor, 1 Laboratory Tech II, 1 Microbiologist I), and a

consulting pathologist. The laboratory has 1,369 square feet of current usable space and some additional space for expansion.

The clinical laboratory provides a wide range of services for the facility. The workload has remained very constant over the past four fiscal years changing only an estimated 1,023 tests or 2%. In FY 1978, a total of 171 tests were contracted out to private laboratories. Approximately half of these tests were sent to the Physician's Medical Laboratory in Springfield (cholesterol, triglycerides, folic acid). The other contractual tests were sent to Consolidated Biomedical Laboratory in Wichita, Kansas.

The cost of operating this laboratory has increased 15% over the last four fiscal years.

ATTACHMENT #1

AGREEMENT BETWEEN KANKAKEE DEVELOPMENTAL CENTER AND THE MANTENO MENTAL HEALTH CENTER FOR AN EXCHANGE OF SUPPLIES AND SERVICES RELATING TO THE OPERATION OF THEIR RESPECTIVE LABORATORY

It is agreed by the Kankakee Developmental Center and the Manteno Mental Health Center that an exchange of services and supplies will occur under the following conditions and limitations:

A. Supplies:

1. Laboratory supplies will be exchanged when one facility experiences a shortage of the needed item and patient health is placed in jeopardy at that facility due to the shortage.
2. Supplies will only be exchanged when the sending facility has an adequate supply so that providing supplies will not endanger health at the sending facility.
3. The borrowing facility will replace supplies as soon as their stock has been replenished, but in no case later than three months from when the supplies were received.

B. Services:

1. The provision of services includes but is not limited to the analysis of lab test.
2. Services will be provided only:
   a. When there has been equipment breakdown and repair service is unavailable; or
   b. In emergency situations when the physician needs a report before it (would be) available from the borrowing

facility due to equipment breakdown or staff shortages.

c. When one facility can provide a lab test result, which the physician deems essential, which cannot be done at the borrowing facility because of lack of appropriate equipment.

This agreement shall remain in effect until either party gives the other party thirty (30) days notice of cancellation.

Entered this _____ day of _____, 1977.

Ira Collins, Superintendent Kankakee Developmental Center	Ms. Ella A. Curry, R.N., Superintendent Manteno Mental Health Center

STATE: _____ DATE: _____

1. a. FACILITY NAME: _____ FACILITY NUMBER: _____

   b. ADDRESS: _____

2. a. HOURS OF LABORATORY OPERATION: _____ _____ _____
   (Daily) (Weekends) (Night Coverage)

   b. NAME OF RESPONDENT: _____ TELEPHONE # _____

   c. TITLE OF RESPONDENT: _____

3. Does your laboratory provide services or have activities in areas other than diagnostic? If yes, check applicable area(s):

   ____ Training
   ____ Research
   ____ Other (Specify) _____

4. Please provide the following information on each person in your laboratory (including clerical personnel). Use FY '78 base data.

CIVIL SERVICE CLASSIFICATION	AMOUNT OF TIME SCHEDULED TO WORK			ANNUAL SALARY RATE*
This information is available (including salaries) on your Personal Service Management System printout.	(Check Full Time/Part Time and give Hours scheduled per month.			Exclude Overtime and fringe benefits
	FULL	PART	HOURS PER MONTH	
			TOTAL $	

5. TOTAL ANNUAL AMOUNT (FY '78)FOR OVERTIME (Standby and Call-back): _____
   (This data may also be obtained from your PSMS printout. You may contact your facility's MCS Coordinator)

* Data available on PSMS printout

6. List all of your laboratory equipment which is "built-in" (e.g., walk-in refrigerators and incubators, autoclaves, fume hoods, etc.), and all other major items (i.e., those that cost over $500.00) of equipment. Also list your current needs for built-in and major equipment:

EQUIPMENT ITEM	ON HAND	ON ORDER	NEEDED
Automated Chemistry Analyzer			
Autoclave			
Acid-Base Analyzer			
Analytical Balance			
Blood-Gas Analyzer			
Centrifuge (floor model)			
Chloridometer			
Colorimeter			
Diluters, Auto or Semi-Auto			
Flame Photometer			
Fluorometer			
Freezer, Ultra-Low			
Gas/GL Chromatograph			
Hematology Analyzer			
Hood, Fume			
Hood, Biological			
Incubator			
Microscope			
Slide Stainer, Automatic			
Scintillation Counter			
Spectrophotometer			
Sonicator			
Still			
Titrator			
OTHER (SPECIFY BELOW) ----------			

7. Please indicate below the type and amount of space you presently occupy (Information regarding space may be obtained from the MCS Space File.* You may need to contact your facility's MCS Coordinator).

TYPE OF ROOM	AMOUNT OF SPACE (In sq. ft)
TOTAL	

8. If you subscribe to an external quality control (proficiency testing) program, please give the name of the providor and the test areas covered:

9. Please describe generally any program changes you anticipate will occur in the next 5 years which will have an impact on the number or type of personnel, type of equipment, or space required by your laboratory:

* Management Cost System, Space File, in your Managment Information Services. The Space File printout, from the computer in Springfield, has each room within a facility categorized, including square footage.

10. ANNUAL LABORATORY TEST WORKLOAD (FY '78 Base Data). For additional tests not included below, please use blank page provided at end.

NAME OF TEST	FACILITY LAB	MEDICAL USE/NEED				FOR CONTRACTUAL SERVICES ONLY		
	NUMBER OF TESTS	STAT	< 24 HOURS	1-3 DAYS	> 3 DAYS	NUMBER OF TESTS	COST PER TEST	NAME OF CONTRACTUAL LABORATORY
CLINICAL CHEMISTRY - TOTAL								
Acid phosphatase								
Albumin, urine								
Alkaline phosphatase								
Amylases								
Bilirubin								
Blood Gases								
BUN								
Calcium								
Cholesterol								
C.P.K.								
Creatinine								
Dilantin								
Electrolytes (Na, K, Cl)								
Glucose, Blood and S.F.								
Glucose, urine								
Iron								
Iron binding capacity								
L.D.H.								
Lithium								
Occult blood								
P.B.I.								
Phosphorus								
P.K.U.								
Pregnancy test								
Protein, total (A,G,A/G)								
SGOT								
SGPT								

10. ANNUAL LABORATORY TEST WORKLOAD (FY '78 Base Data)

NAME OF TEST	FACILITY LAB. NUMBER OF TESTS	MEDICAL USE/NEED STAT	<24 HOURS	1-3 DAYS	> 3 DAYS	FOR CONTRACTUAL SERVICES ONLY NUMBER OF TESTS	COST PER TEST	NAME OF CONTRACTUAL LABORATORY
Triglycerides								
T_3								
T_4								
Uric Acid								
SEROLOGY - TOTAL								
Syphilis serology								
Other bacterial serology								
Fungal serology								
Parasitic serology								
Viral and rickettisal								
Infectious mono								
Rheumatoid factor								
HEMATOLOGY-IMMUNOHEMATOLOGY - TOTAL								
Hematology								
Bleeding clotting time								
Cell indices								
Complete blood counts								
R.B.C.								
W.B.C.								
Hgb								
Hct								
Diff								
Platelets								
Prothrombin time								
Reticulocyte count								
Sedimentation rate								
Sickle cell								
Typing, crossmatching								

10. ANNUAL LABORATORY TEST WORKOLAD (FY'78 Base Data)

NAME OF TEST	FACILITY LAB	MEDICAL USE/NEED				FOR CONTRACTUAL SERVICES ONLY		
	NUMBER OF TESTS	STAT	< 24 HOURS	1-3 DAYS	> 3 DAYS	NUMBER OF TESTS	COST PER TEST	NAME OF CONTRACTUAL LABORATORY
URINALYSIS - TOTAL								
Complete (physical, chemical, microscopic)*								
Partial								
TOXICOLOGY - TOTAL								
Physical Samples								
Pesticides								
Drugs & narcotics								
Paint								
Biological Samples**								
Blood								
Urine								
Body tissues								
Body fluids								
Breath								
PATHOLOGY - TOTAL								
Autopsy								
Exfoliative cytology								
Tissue, surgical								
DIAGNOSTIC MICROBIOLOGY - TOTAL								
Bacteriology								
Culture, blood								
Culture, cervical								
Culture, throat								
Culture, sputum								
Culture, stool								

* Physical = color, transparency, specific gravity, pH; Chemical = albumin, sugar, acetone, bile, occult blood, bilirubin; Microscopic = WBC, RBC, epithelial cells, sediment, mucus, casts, crystals.

** Includes exams for alcohol, other volatiles, drugs and narcotics, lead, other metallic poisons, other poisons, insecticides, etc.

10. ANNUAL LABORATORY TEST WORKLOAD (FY '78 Base Data)

NAME OF TEST	FACILITY LAB	MEDICAL USE/NEED				FOR CONTRACTUAL SERVICES ONLY		
	NUMBER OF TESTS	STAT	<24 HOURS	1-3 DAYS	> 3 DAYS	NUMBER OF TESTS	COST PER TEST	NAME OF CONTRACTUAL LABORATORY
Culture, urine								
Drug Sensitivity								
Smear, A.F.B.								
Smear, G.C.								
Smears for Spermatozoa								
Mycology								
Direct exams (+ stains)								
Culture								
Parasitology								
Direct exams, stool								
Direct exams, blood								
Pinworm slide								
Virology								
Rabies specimen								
Other viral isolations								
For additional tests not included previously, please indicate below								

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10. ANNUAL LABORATORY TEST WORKLOAD (FY '78 Base Data)

NAME OF TEST	FACILITY LAB	MEDICAL USE/NEED				FOR CONTRACTUAL SERVICES ONLY		
	NUMBER OF TESTS	STAT	<24 HOURS	1-3 DAYS	>3 DAYS	NUMBER OF TESTS	COST OF TEST	NAME OF CONTRACTUAL LABORATORY

11. Please indicate method (area and staff) blood specimen are obtained. (Check all applicable)

____ On ward
____ In laboratory
____ By lab. personnel
____ By nursing personnel
____ By contractual lab. personnel
____ Other (Specify) _____

12. FOR CONTRACTUAL SERVICES ONLY: If contractual services are provided, please complete the following:

a. How are specimen delivered to contractual laboratory? _____

_____

b. On the average how long does the delivery take? _____

_____

c. How are the laboratory reports returned to your facility (i.e. mail, messenger, etc.)?

_____

d. Is there additional charge for STAT results? Yes: ___ No: ___ If yes, what is the cost per case? _____

13. Does your laboratory serve outpatient cases? Yes: ____ No: ____ If yes, approximately how many per year? _____

ADDITIONAL COMMENTS:

DMHDD FACILITY: _____ CLINICAL LABORATORY SUBUNIT: _____

MCS- Cost of Operations Report - Year To Date

DIRECT COSTS/PERS. COST	FY 1976	FY 1977	FY 1978	YEAR TO DATE FY 1979
PATIENT SERVICES				
COMMUNITY SERVICE				
RESEARCH				
TRAINING				
ADMINISTRATION				
SUPPORT				
SUBTOTAL				
CONTRACTUAL SERVICES				
REPAIR-MAINTENANCE				
TRAVEL				
COMMODITIES DRUG				
COMMODITIES OTHER				
PRINTING				
TELECOMMUNICATIONS				
DATA PROCESSING				
OPR. AUTO EQUIPMENT				
MISCELLANEOUS				
DIRECT COST TOTAL				

INTERVIEW OUTLINE

Name of Institution _____

Superintendent _____

Medical Coordinator _____

Laboratory Director _____

_____

Admissions _____ Average Daily Census _____

Complete Questionnaire (Leave Return Envelope if Necessary)

Testing Requirements of Institutions

Admissions _____

_____

_____

In Patients _____

_____

_____

Out Patients _____

_____

_____

Tests Needed but Currently Not Available _____

_____

_____

% of Tests Done on _____ In Patients _____ Out Patients

Laboratory Expenditures (19__)

Personnel _____

Supplies and Equipment _____

Other (Cons. & Contracts) _____

Total _____

Other Duties of Laboratorians _____

_____

_____

_____

_____

_____

Room for Expansion _____

_____

_____

Walk Through Lab.

ATTACHMENT 2

Phase II

A STUDY OF THE LABORATORY SYSTEM

STATE OF ILLINOIS

Department of Public Health

Study by: William D. Adams, Management Consultant,
Laboratory Management Consultation Office

Raymond L. Schrunk, Management Consultant,
Laboratory Management Consultation Office

Walter J. Guest, Management Consultant,
Laboratory Management Consultation Office

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
Bureau of Laboratories
Atlanta, Georgia 30333

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I. INTRODUCTION

A. Background Information

On September 5, 1978, the Director of Public Health, State of Illinois, initiated a letter to the Director, Illinois Department of Public Aid, (DPA), and the Director, Illinois Department of Mental Health and Developmental Disabilities, (DMHDD). The letter proposed to establish a study committee from the three agencies to respond to the Governor's Cost Control Task Force Recommendation No. 518: "Use public health facilities to do laboratory work for the Departments of Public Aid and Mental Health." Dr. Hugh-Bert Ehrhard, Chief, Division of Laboratories, was named as the State Health Department's representative. Dr. John Nelson, Coordinator of Medical Services, DMHDD, and Mrs. Wilma Gay, Program Coordinator, Bureau of Provider Services, DPA, represented their agencies on the committee. The committee met on November 16, 1978, at the Division of Laboratories office in Chicago. At the first meeting, the committee discussed the Task Force Recommendation and its effect on the three State agencies. After that initial meeting, each of the committee members began to collect data on the laboratory services of their agencies. Mrs. Gay provided computer printouts of DPA independent certified laboratory service costs in Cook County. Dr. Nelson requested data from all of the DMHDD facilities regarding laboratory services. Dr. Ehrhard, the committee chairman, in a February 1979 progress report to the State Health Department indicated that he wanted to request assistance from the Center for Disease Control, (CDC), Atlanta, Georgia. On March 30, 1979, Dr. Ehrhard did request assistance from Dr. Edward L. Cavenaugh, Director, Laboratory Management Consultation Office, Bureau of Laboratories, CDC. Mr. Brian Dugan and Mr. Bill Adams, Laboratory Management Consultants, Laboratory Management Consultation Office, Bureau of Laboratories, CDC, met with Dr. Ehrhard at the Annual Meeting of the Association of State and Territorial Public Health Laboratory Directors. These discussions were conducted on April 8, 1979, to determine the best method of providing assistance to the Illinois Governor's Cost Control Task Force Committee. Mr. Dugan then met with the committee in Springfield, Illinois, on April 26, 1979. It was at this meeting that

the type of consultation assistance that CDC would provide to the study committee was identified. Dr. Ehrhard then finalized the consultative request in a letter to Dr. Cavenaugh May 2, 1979. Plans were made to divide the overall question (Recommendation #518) into three study phases. The rationale for this approach was that before any recommendations could be developed, each agency's laboratory service needs and resources had to be identified. Phase I (May - July) is a review of the current and future laboratory service needs and resources of the DMHDD. Phase II (July - September) is a review of the State Public Health Department's laboratory needs and resources. Phase III (October - December) addresses the DPA service needs. Upon completion of these study phases a report will be made on the feasibility of Recommendation #518. Phase I has been completed and a draft copy of the report was provided to the committee members on July 16, 1979. The following report is an interim summary of the Phase II activities of the CDC consultant team.

B. Study Methodology

The purpose of Phase II of this study is to identify the laboratory needs and resources of the Illinois Department of Public Health. In order to accomplish this purpose certain types of data had to be collected and analyzed: budget, personnel, and workload data from the Division of Laboratories had to be obtained from the Chicago, Springfield, and Carbondale sites. It was also necessary to identify the users of laboratory services within the Department of Public Health and to identify where these laboratory services were obtained. Other users and potential users of laboratory services such as the city/county health departments, and other state agencies had to be identified. Analysis of these types of data should (1) identify the type and number of tests being performed by the Division of Laboratories at the three facilities; (2) identify the Department of Public Health programs which utilize the Division of Laboratories' testing services; (3) identify health and environmental laboratory needs which are currently not being met by the Division of Laboratories; and (4) suggest testing services which the Division of Laboratories should add or delete. The large volume of data which is

required for this study indicated that on-site visits to the State would be necessary. The Phase II data collection trip was from July 16, 1979 through July 27, 1979. Mr. Adams, Mr. Raymond L. Schrunk, and Mr. Walter J. Guest, Management Consultants, Laboratory Management Consultation Office, interviewed representatives of the Department of Public Health, representatives of the Public Health organizations throughout the State of Illinois, and the laboratory personnel at the three Division of Laboratories' sites as well as at local health departments. On July 27, the CDC consultants met with Dr. Ehrhard and representatives of the DPA, DMHDD to discuss the preliminary findings regarding this on-site phase of the study. This report is an extension of the oral report given during that session.

II. CURRENT STATE PUBLIC HEALTH LABORATORY SERVICES

The Division of Laboratories currently operates three separate facilities. The Central Laboratory is located in Chicago with a large branch laboratory in Springfield, and a much smaller branch laboratory in Carbondale. Tables 1 through 4 and Figures 1 through 4 provide the basic quantitative data for these sites.

The Chicago site is the largest of the laboratories. It is housed in a modern, multi-level building. The space appears to be very adequate for its current use, but there is little or no room for expansion of services. The laboratory provides a very broad range of laboratory testing in support of public health programs carried out throughout the State, as well as other program activities such as the Laboratory Improvement Section, Arbovirus Surveillance Program, and the Clinical Laboratory and Blood Banking Section. They perform tests in bacteriology, parasitology, virology, mycology, and serology. In addition, the laboratory performs PKU and T4 tests for the metabolic diseases screening of newborn infants. The laboratory also has an extensive environmental testing program and toxicology analyses. Figure 1 indicates by county the source of specimens received by the Division of Laboratories, Illinois Department of Public Health. The figure demonstrates quite readily that the Chicago facility serves the entire State. There are 107 people employed in the Chicago facility (Table 4). The laboratory employees include microbiologists, chemists, biologists, toxicologists, and other professional staff. There are also support personnel such as the laboratory technicians, laboratory helpers, and the secretarial/clerical positions. Table 1 indicates the number of specimens and tests performed at the Chicago facility. The number of specimens processed by the laboratory has decreased by 13% from the period 1976 to 1979. The actual number of tests, however, has shown a decrease of only 7%.

The Springfield facility is the second largest of the three facilities. It is housed in an old building which is completely inadequate and unsuited to laboratory use. The space available is too small and limits the current level of services being provided from that facility. The Springfield facility offers a wide variety of public health laboratory testing. They offer almost a complete line of bacteriology tests, a full range of environmental testing

(microbiology, chemistry, and radiation chemistry), syphilis serology, a limited range of toxicology tests, and rabies examinations. Figure 1, the source of specimens by county, demonstrates that the Springfield facility also provides services on a Statewide level, receiving specimens from each of the Illinois counties. There are 41 employees at the Springfield facility, generally of the same disciplines which are found in Chicago. The Springfield facility conducted 241,880 tests on 193,821 specimens in 1979. Their workload has remained relatively constant for the period 1976 through 1979.

The Carbondale facility is located in an old building adjacent to the Southern Illinois University campus. This laboratory's activities were rather drastically curtailed in the very recent past, and thus, the facility appears to be adequate for the limited services being conducted there at this time. Services that were deleted were shifted to the Springfield and Chicago laboratories. The Carbondale facility serves as a regional laboratory for limited testing in southern Illinois. They perform basic bacteriology cultures and smears, rabies examinations, and limited environmental microbiology. The regional nature of the Carbondale facility is demonstrated by Figure 1, where it is noted that all of the specimens received in the Carbondale facility originate from the counties in southern Illinois. This laboratory employs only six people, four of whom are microbiologists. As previously indicated, the services of this laboratory have been curtailed rather drastically with the number of specimens and number of tests decreasing by 47% and 44% respectively. Plans are being made to begin restoring deleted services late in 1979.

TABLE 1

Laboratory Workload, 1976-1979, Division of Laboratories
Chicago, Springfield, Carbondale

Facility	FISCAL YEAR							
	1976		1977		1978		1979	
	Number Specimens	Number Tests	Number Specimens	Number Tests	Number Specimens	Number Tests	Number Specimens	Number Tests
Chicago	197,181	329,883	190,518	317,627	171,172	299,817	171,379	307,312
Springfield	196,682	246,593	197,455	248,114	200,602	251,028	193,821	241,880
Carbondale	80,967	90,292	80,685	90,071	49,334	56,751	43,225	50,681
Total	474,830	666,768	468,658	655,812	421,108	607,596	408,425	599,873

TABLE 2

Expenditures, 1976-1979, Division of Laboratories

Object	FY 1976	FY 1977(1)	FY 1978	Estimated FY 1979 General	Estimated FY 1979 PKU	Estimated FY 1979 Total
Personal Services	1,767,284	1,865,692	1,965,700	1,869,400	81,900	1,951,300
Retirement	121,361	125,090	152,500	145,200	6,500	151,700
Social Security	55,066	89,060	98,300	83,000	5,300	88,300
Group Insurance	39,715	35,210	92,800	86,500		86,500
Contractual Services	94,393	127,200	140,400	136,100	12,500	148,500
Travel	15,334	39,900	20,300	25,550	700	26,250
Commodities	251,194	254,228	298,400	285,100	16,200	301,300
Printing	15,000	24,200	10,200	10,300	16,000	26,300
Equipment	47,157	32,800	43,000	175,000	66,000	241,000
Telecommunications	24,000	26,900	24,900	28,100	1,200	29,300
Operation of Automotive Equipment	4,000	3,400	1,100	2,200		2,200
TOTAL	2,434,504	2,623,680	2,847,600	2,846,450	206,300	3,052,750

(1) Includes implied consent and substance impairment program funds.

TABLE 3

Types of Services Available Through the Division of Laboratories
Chicago, Springfield, Carbondale

Name of Test	Facility		
	Chicago	Springfield	Carbondale
CLINICAL CHEMISTRY	--	--	--
DIAGNOSTIC MICROBIOLOGY			
Bacteriology (Referred Cultures)	X	--	--
Culture, blood	--	--	--
Culture, cervical	X	X	X
Culture, throat	X	X	X
Culture, sputum	X	X	--
Culture, stool	X	X	X
Culture, urine	X	X	X
Drug Sensitivity	X	--	--
Smear, A.F.B.	X	X	--
Smear, G.C.	X	X	X
Smear, Misc. organisms	X	X	X
Special Bacteriological Procedures*	X	--	--
Mycology	X	--	--
Direct exams (+ stains)	X	--	--
Culture	X	--	--

X = Tests Performed.

-- = Tests Not Available.

*Includes Staphylococcus phage typing, Salmonella serotyping, Streptococcus grouping.

(continued)

TABLE 3 (cont'd)

Types of Services Available Through the Division of Laboratories
Chicago, Springfield, Carbondale

Name of Test	Facility		
	Chicago	Springfield	Carbondale
DIAGNOSTIC MICROBIOLOGY (cont'd)			
Parasitology			
Direct exams, stool	X	--	--
Direct exams, blood	X	--	--
Pinworm slide	X	--	--
Virology			
Rabies specimen	X	X	X
Other viral isolations	X	--	--
ENVIRONMENTAL MICROBIOLOGY			
Dairy			
Chemistry	X	X	X
Microbiology	X	X	X
Food			
Chemistry	X	X	X(1)
Microbiology	X	X	X(1)
Water			
Chemistry	X	X	X
Microbiology	X	X	X
METABOLIC DISEASES SCREEN			
PKU - T4	X	--	--

X = Tests Performed.

(1) = Limited.

-- = Tests Not Available.

(continued)

TABLE 3 (cont'd)

Types of Services Available Through the Division of Laboratories
Chicago, Springfield, Carbondale

Name of Test	Facility		
	Chicago	Springfield	Carbondale
SEROLOGY			
Syphilis serology	X	X	--
Other bacterial serology	X	X	--
Fungal serology	X	--	--
Parasitic serology	X	--	--
Viral and rickettsial	X	--	--
Infectious mono	X	X	--
TOXICOLOGY			
Physical Samples			
Pesticides	X	X	--
Drugs & narcotics	X	--	--
Paint - lead	--	X	--
Foodstuffs	X	X	--
Biological Samples**			
Blood	X	X	--
Urine	X	X	--
Body tissues	X	X	--
Body fluids	X	--	--

X = Tests Performed.

-- = Tests Not Available.

**Includes exams for alcohol, other volatiles, drugs and narcotics, lead, other metallic poisons, other poisons, insecticides, etc.

TABLE 4

Laboratory Personnel, by Classification, Division of Laboratories
Chicago, Springfield, Carbondale

Position Classification	# of Employees at Facility		
	Chicago	Springfield	Carbondale
Chief Public Health Microbiologist	1	-	-
Microbiologist V	3	-	1
Microbiologist IV	7	2	-
Microbiologist III	8	3	1
Microbiologist II	9	-	1
Microbiologist I	12	4	1
Chemist IV	2	1	-
Chemist III	4	-	-
Chemist II	5	2	-
Chemist I	2	2	-
Biologist I	2	-	-
Chief Toxicologist	1	-	-
Assistant Chief Toxicologist	1	-	-
Biochemist II	1	-	-
Public Health Laboratory Evaluator	3	4	-
Other Professional/Administrative	3	1	-
Laboratory Technician	10	6	-
Laboratory Helper	8	6	1
Laboratory Equipment Specialist	1	-	-
Secretarial/Clerical	17	8	1
Storekeeper	3	1	-
Life Science Career Trainee	4	1	-
TOTALS	107	41	6

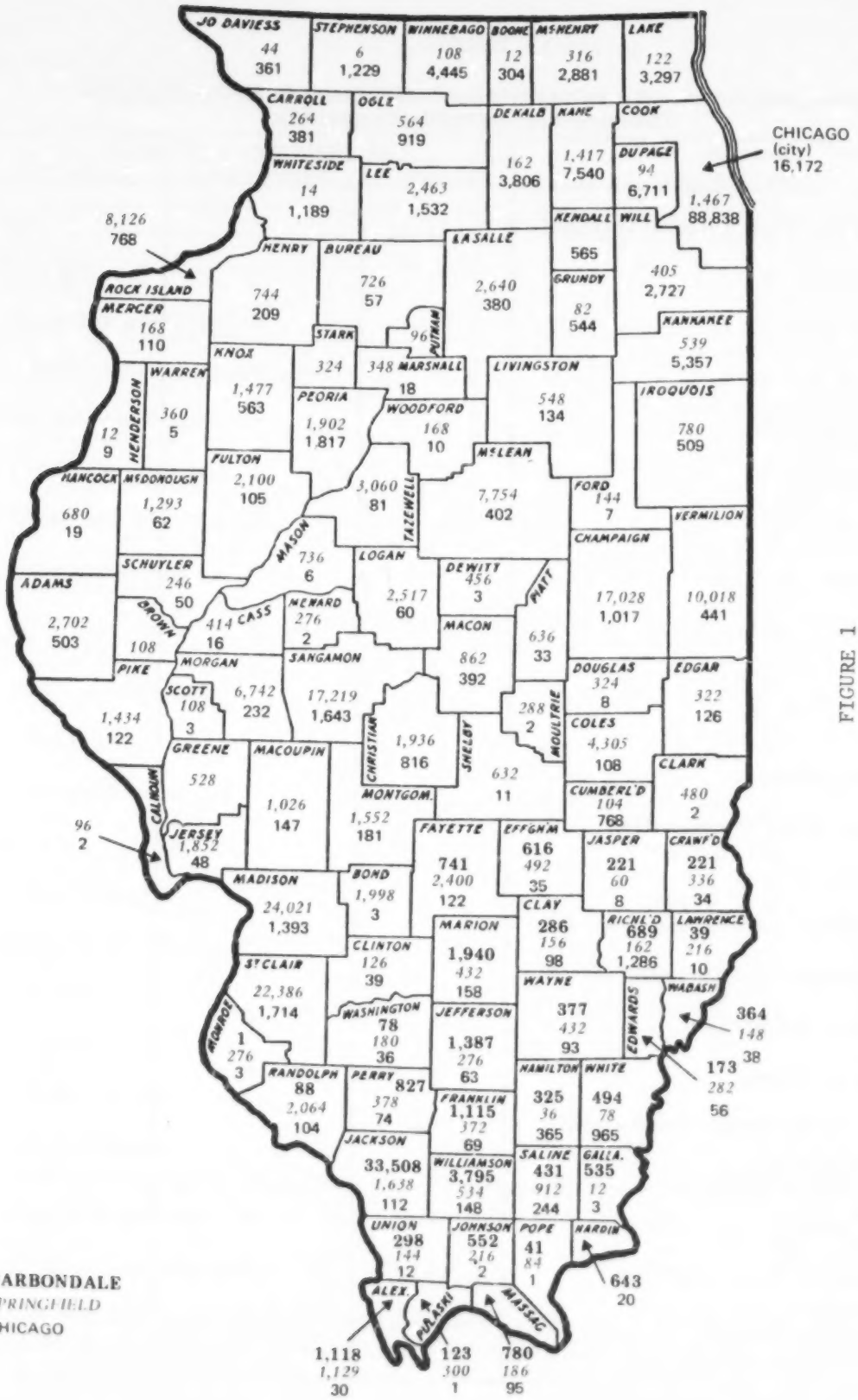

FIGURE 1

Number of Specimens Received in the Division of Laboratories, by County of Origin and by Laboratory Facility, FY 1979 (estimated)

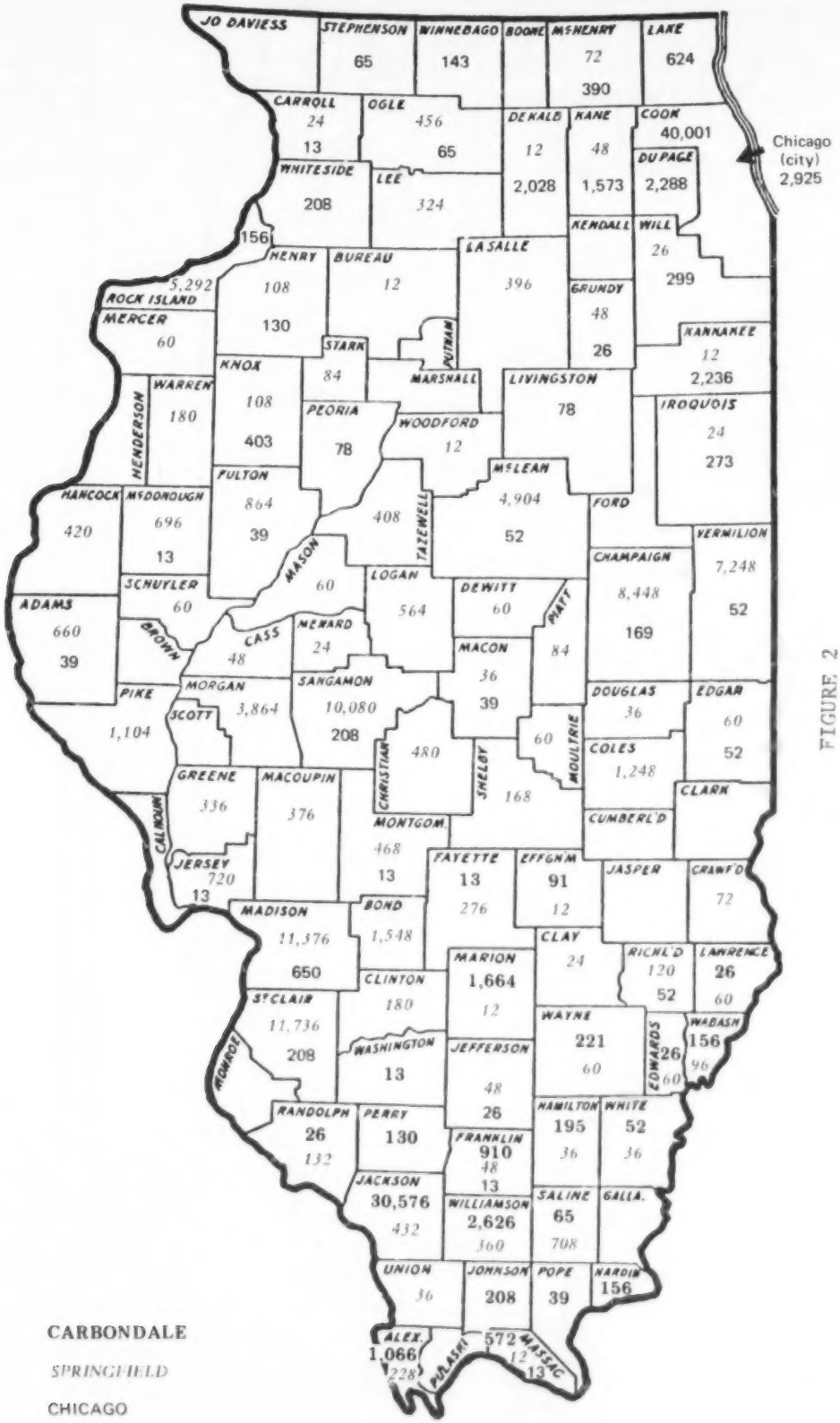

FIGURE 2

Number of Diagnostic Microbiology Specimens (Isolation and Identification) Received in the Division of Laboratories, by County of Origin and Laboratory Facility, FY 1979 (Estimated)

FIGURE 3

Number of Environmental Microbiology (Water) Samples Received in the Division of Laboratories, by County of Origin and by Laboratory Facility, FY 1979 (estimated)

FIGURE 4

Number of Syphilis Serology Specimens Received in the Division of Laboratories, by County of Origin and Laboratory Facility, FY 1979 (estimated)

SUMMARY

The combination of these three facilities represents a highly developed State Public Health Laboratory system providing laboratory testing in all phases of bacteriology, mycology, parasitology, virology, environmental microbiology, serology, and toxicology. They provide diagnostic testing services to every county within the State of Illinois. The Division of Laboratories employs 154 individuals in positions ranging from the highly technical professional to the support and clerical services. In 1979, the three facilities conducted approximately 600,000 tests on slightly over 400,000 specimens. The expenditures for the three facilities combined have increased about 25% for the period 1976-1979. However, it should be noted that of the $618,000 increase in expenditure, $206,000 were designated for a new PKU testing program. Thus, the actual expenditure level of the laboratory has increased only 17% during the period 1976 to 1979, or less than 6% per year. Figures 2, 3, and 4 indicate that the laboratories also serve a regional function. For example, in the area of environmental microbiology, Figure 3, the Chicago facility serves the northern counties; the Springfield facility, the central counties; and the Carbondale facility, the southern counties. There are very few exceptions to this and generally the exceptions can be explained either through ease of transportation or sophistication or complexity of tests.

INTERVIEWS

In addition to the quantifiable data regarding specimens, tests, and personnel, the study team interviewed each of the Section Chiefs in the Division of Laboratories to determine what problems, if any, currently existed and to get an indication of trends in laboratory services.

Toxicology--The primary problem related to the study team regarded the transportation of specimens; on occasion some specimens are lost in the mail. One additional service identified as being needed was screening for trace metals to support environmental programs. Although some metal analyses are being done in Springfield, they are currently on a limited scale. The toxicologists also foresaw a need for a Statewide pathology system for forensic pathology services. The toxicology program is primarily directed toward support of law enforcement agencies, both local and State. Some therapeutic

monitoring for mental health centers and drug screening for correctional institutions is provided. Support of local health departments is minimal.

Arbovirology--The Arbovirus Surveillance Program is basically not a bench laboratory operation. Most of their laboratory analyses are done by microbiologists in the Virology Section, Division of Laboratories. The major effort of the arbovirology staff is in the area of arbovirology surveillance.

Virology--The Virology Section identified a current need for equipment and sees the need for additional testing. The additional work indicated includes chlamydial analyses for newborns, rubella analyses on a statewide basis, and vaccine surveillance.

Microbiology--The Microbiology Section currently has 4 vacancies which limits their activities. They also have experienced delays in mail service and would like to see a statewide courier system put into operation. In order to improve their service they would like to phone out positive results. No problems were stated regarding the amount of space or equipment. Because of extreme fluctuations in workload, personnel, and budget, the Microbiology Section has had a reluctance to encourage their users to submit specimens. This reluctance, they feel, has resulted in many potential clients not knowing what services are available or where services can be obtained. New tests identified included the expansion of fungal serology and other serologies such as Legionnaire's Disease and amebiasis. They would like to see the premarital syphilis serology program deemphasized and the testing transferred to the many private laboratories. Testing performed in the Microbiology Section is in the support of some public aid patients, mental health, local health departments, MD's, and other State institutions.

Springfield Branch Laboratory--The Springfield Laboratory provides a broad range of services with emphasis on environmental testing. The major problems identified were hiring and retaining qualified personnel, poor facilities, and inadequate equipment. Because of these limitations, additional work cannot be handled at this facility. If space, personnel and funding were available, new testing needed would include environmental work such as BOD's and aflotoxins.

Carbondale Branch Laboratory--The Carbondale Branch Laboratory is a very limited operation. Because the workload has been so drastically curtailed, the space and number of people was reported as adequate. However, any expansion in services would require additional people.

There were two other areas of need identified by the laboratory personnel. The first is to update the Division of Laboratories service manual. The purpose of a service manual is to provide the user of the laboratory with information regarding the types of testing available and the methods of specimen collection, handling and shipment. The other area of need identified for improvement of the laboratory services is the establishment or improvement of relationships between the Division of Laboratories and the local health departments, with particular emphasis on those health departments which have laboratories.

III. STATE DEPARTMENT OF PUBLIC HEALTH PROGRAMS

The review team conducted interviews with personnel from many of the health department programs. Generally, we tried to identify those programs which had a need for laboratory services or were in some other way related to the laboratory

A. Division of Disease Control

1. Communicable Disease Program

The Communicable Disease Program works with the local health departments or for those areas where there is no local health department and with the regional State personnel in communicable disease investigations, surveillance, and epidemiology. The Communicable Disease Program utilizes the Division of Laboratories' three facilities for venereal disease (VD) control. Tests for gonorrhea are performed at all three facilities. Syphilis serologies are performed at the central laboratory in Chicago and at the Springfield Branch Laboratory. VD laboratory testing is also obtained through the local health departments that have laboratories and through various private and hospital laboratories throughout the State. The VD Program supplies GC media to the Division of Laboratories and to seven other sites throughout the State for redistribution to clinics and physicians. The Immunization Program also utilizes the services of the Division of Laboratories. The two major areas are rubella testing for exposed and pregnant females and influenza testing in support of a statewide influenza surveillance system. The Communicable Disease Program conducts an extensive epidemiology program for many other diseases of concern. These epidemiological investigations require a complete array of laboratory testing. Most of the support laboratory work is provided by the Division of Laboratories. The Division of Laboratories cooperates with the Communicable Disease Program through a reporting system of positive test results and does provide some training in specimen collection and handling. The Communicable Disease Program related very few problems about laboratory services to the study team. The main problem identified was poor

transportation of samples. Additional tests requested by the Communicable Disease Program were for hepatitis B, serologies, and ELISA tests.

2. Chronic Disease Program

The Chronic Disease Program provides services in disease areas such as hypertension, diabetes, lead screening, renal diseases, hemophilia, tuberculosis (TB), and cancer control. The State hypertension and diabetes control programs require no laboratory services. The childhood lead program does conduct blood lead screening at two project sites. If an abnormal screening-test result is obtained, then the blood specimen is submitted to the Springfield Branch Laboratory for a quantitative blood lead determination. The Endstage Renal Disease Program is conducted primarily through direct reimbursement to hospitals. Thus, the laboratory tests are part of the direct treatment and reimbursement for each patient. The hemophilia program is operated in much the same way. Laboratory work for the cancer control program is primarily Pap smears. These Pap smear examinations are contracted for through private approved laboratories. The only projected need for the future is in the area of increasing childhood lead screening analyses. Laboratory support for the TB control effort is provided by the Division of Laboratories in Chicago. Some TB testing is also provided through hospitals.

B. Office of Health Facilities and Quality of Care

The programs in this Office require no direct laboratory testing support. Their relationship to the Division of Laboratories is in the area of laboratory inspections for hospital licensure.

C. Division of Family Health

This Division utilizes the Division of Laboratories' main laboratory in Chicago for PKU and hypothyroidism screening of newborn infants. In addition to this current support, the program would like to see the Division of Laboratories expand or alter testing procedures in several

other areas. (1) The Family Health Program would like to see the State Division of Laboratories do all of the sickle cell screening utilizing a hemoglobin electrophoresis method. (2) The Family Health Program wants the Division of Laboratories to change the method of strep testing from the plain swab to the silicone method. (3) They also stated that lead testing should be done at the State laboratory rather than by local health departments to ensure quality and consistency of results. (4) Hematocrits and hemoglobins are currently being done by hemoglobinometers at the local health departments. This program believes that hematocrits and hemoglobins should be sent to the State laboratory.

D. The Emergency Medical Services Division

The Emergency Medical Services Division has limited needs for laboratory services. However, because of the nature of these tests, they are performed at hospitals on an emergency or stat basis.

E. Division of Implied Consent

The Health Department function under the Implied Consent law is to promulgate the rules and regulations of the "Driving Under the Influence" (DUI) Program and approve and certify the breathalyzer instruments every 30 days. They are required to develop the curriculum and oversee the training, licensing, and relicensing of approximately 3,200 equipment operators. Laboratory support for this program is provided by the Toxicology Section of the Division of Laboratories' main laboratory in Chicago. The Toxicology Section prepares the alcohol reference solutions used in calibration of the instruments, and also assays ampules used in the breathalyzer. The State laboratory in Chicago conducts a proficiency testing of the local laboratories which apply for certification to do alcohol testing. The Division of Implied Consent is then notified of the results of the testing. This program is conducted on an annual basis for recertification of the local laboratories. Another State program under the Coroner's Act requires that coroners send in blood and urine samples to the Toxicology Section of the Division's main laboratory in Chicago for all traffic fatalities. Cook County is exempted since they use their own medical examiners. It was stated that some of the coroners are not

now sending in these blood and urine samples and it is expected that as the State begins to enforce this act, the number of samples submitted to the Division's Chicago laboratory will increase significantly.

F. Office of Environmental Health

1. Food and Drug Division

a. Drug Testing Program

The Drug Testing Program is being reactivated and will require laboratory support for drug analyses from the Division of Laboratories. In the past, this support has resulted in problems because the nature of the work generally does not allow for projections of the number and type of tests required.

b. Fish Sampling Program

This program is conducted in cooperation with the Department of Conservation. Laboratory support required for this program is obtained through the Department of Agriculture laboratory in Centralia, because the Division of Laboratories could not provide sufficient support. They currently send five fish samples per month per region, or 40 samples per month for pesticides, mercury, DDT, and PCB analyses. An additional 80 samples per month are supposed to be submitted to the Department of Conservation, but laboratory analyses are not available.

c. Retail Food Sampling Program

There currently is no program in this area, but if legislation is passed a very large number of food analyses would be required. Currently, samples are only being collected in suspect outbreak cases.

d. Food Processing Sampling Program

This program is coordinated with the State Food and Drug Administration. Samples are obtained from manufacturers and wholesale distribution points for biological, microbiological,

or chemical analyses. Although the number of samples required cannot be projected, the current workload is about 400-500 samples per year. All three of the Division of Laboratories' facilities are being used. The Food Program related the following problems with laboratory support to the study team. (1) Reports from the laboratory on analyses of fish samples take too long. (2) The Division of Laboratories' main laboratory in Chicago is no longer able to test, in sufficient quantity, the fat content in ground beef. The number of samples submitted had to be reduced by about 50%. (3) Transportation of specimens to the laboratory within the required 48-hour period is constantly a problem. (4) The Food Processing Program also sees a need for "water activity" tests in the near future.

2. Engineering Division

a. Private Sewerage Program

This program licenses and inspects about 3,000 contractors per year. There are approximately 25,000 licensed in the State. Laboratory services required in this program are biological oxygen demand (BOD) and sand analyses. The Illinois Environmental Protection Agency (IEPA) laboratory does the BOD analyses because the Division of Laboratories is not equipped to perform the tests. The program would prefer that the test be done through the Division of Laboratories. The Division of Laboratories in Springfield does do the sand analyses. Although there are not many sand analyses requested now, the number is expected to increase in the future.

b. Swimming Pool and Bathing Beach Program

This program inspects and licenses about 2,500 facilities. The facilities mail two samples twice a month for coliform and pH analysis. All three of the Division of Laboratories' facilities are utilized. This program experiences an extreme increase of activity during the summer months, which places a tremendous burden on the Division of Laboratories. Because of personnel and

space restrictions, the laboratories must limit the number of specimens which can be submitted during the peak period. An additional problem is in the area of specimen transportation and meeting the required 48-hour deadline.

c. Private Water Supply and Safe Drinking Water

Each of the three laboratories are used in processing approximately 20,000 samples per year for nitrate and coliform analyses. The State currently has not assumed responsibility for the Safe Drinking Water Program. If this does occur, approximately 20,000 wells and noncommunity water systems will have to be monitored. Additional testing required of the Division of Laboratories would be approximately 48,000 coliforms and 12,000 nitrates annually.

3. Radiological Health Division

This program has responsibility for sources of radiation such as x-ray in dental and doctor's offices, as well as industrial x-ray equipment and radioactive materials. Radioactive analyses for this program are obtained from the Springfield Branch Laboratory and are limited to 100-150 samples per year.

4. Nuclear Safety

The program responsibility includes environmental monitoring of nuclear facilities. The monitoring includes about 2,000 samples per year of air, water, milk, and vegetation. The laboratory analysis of these samples is performed at the Springfield Branch Laboratory. At the time of this study, the radio chemist had gone and the Springfield Branch was attempting to recruit a replacement.

5. Milk Control Division

a. Raw Milk from Farms

Approximately 3,500 farms are required to test one sample per month on the raw milk. The processing plants test part of the samples themselves or they obtain the analysis from an approved

commercial laboratory. Except in very rare instances, the Division of Laboratories does no testing. The State laboratory does, however, certify the milk testing laboratories.

b. Finished Products

The finished product samples are collected at the processing plants. Each of the three laboratories is used for this testing. In addition, one water sample from each of the dairy processing establishments is processed semi-annually. The finished milk products, approximately 17,000 samples per year, are analyzed for bacterial count, butterfat, coliform, and pesticides. The laboratory problems of the Milk Control Division related to the study team include: (1) The Division of Laboratories has indicated cutbacks in pesticide testing because of lack of personnel. The Milk Control Program needs very much for the volume of pesticide analyses not to be reduced. (2) The program also wants the Division of Laboratories to do some of the raw milk testing. (3) Specimen transportation is also a problem. The program would like to see the number of branch laboratories increased. The three laboratories currently available (the main laboratory and two branch laboratories) are not sufficient because of the 36-hour testing limit on dairy specimens.

6. Sanitation

This program conducts inspections of hospitals, schools, youth camps, recreation areas, mobile home parks, migrant labor camps, for such things as water supply, sewage disposal systems, refuse disposal, laundry systems, sleeping accommodations, and plumbing. The program also has pesticide and vector control programs. The water analyses required are being performed by the three branch laboratories. Other analyses are sent to a Federal laboratory in cooperation with the U. S. Product Safety Commission. The future need for laboratory testing was identified as asbestos testing. The Department of Education currently plans a program to test some schools for asbestos. It is estimated that the testing would take place over a 5 to 10 year period. Although

IEPA is now doing this type of asbestos testing, it would not be able to handle the increased volume of a major effort.

IV. LOCAL HEALTH DEPARTMENTS

Local health departments represent a combination of services and programs which are designed to prevent disease, prolong life, and improve the general health of the public. The services of a local health department generally include, but are not limited to, infant care, maternal, child and adult health, nursing, dental health, nutrition, communicable disease control, education and information, home health care, and environmental health. Because the State Health Department and the Division of Laboratories have a very direct relationship with the local health departments, the study team visited a representative sample of local health departments to determine what the laboratory needs of a local health department are and how these laboratory needs are met. The representative sample selected by the study team ranged from the very small county or multi-county health department with limited services to the very large health department such as that operated by the city of Chicago. The following is a description of the laboratory service needs and resources of these health departments.

A. Chicago Department of Health

The Chicago city public health laboratory provides essentially all testing support required for the extensive programs conducted by the Chicago Department of Health. The laboratory processes between 2½ and 3 million specimens, performing about 10 million tests annually. The laboratory functions as a clinical laboratory as well as a public health laboratory, seems to be very well equipped, and is staffed with 225 employees, including two pathologists. The laboratory is comprised of a central laboratory, laboratories at six comprehensive health care centers, and facilities at 26 other clinics throughout the city. The majority of the tests are performed at the central laboratory with limited testing at the health care centers.

Additional laboratory support is obtained from Cook County Hospital, (T3 and T4 analyses) and the Illinois Department of Health's Division of Laboratories, (salmonella and shigella typing).

B. Cook County Health Department

The Cook County Health Department is a resolution health department rather than a referendum health department. That is, it has no tax base and funding is provided from general revenues. The Cook County Health Department has no laboratory facility. More than 90% of its laboratory testing is done by the Illinois Department of Public Health's Division of Laboratories. Some additional testing, such as Pap smears in support of the Family Planning Program, is obtained through contract with private or hospital laboratories.

C. Evanston North Shore Health Department

The laboratory division of the Evanston North Shore Health Department is involved in both clinical and environmental testing. The Environmental Laboratory Section provides services to other villages in the area as well as to Evanston. Services are provided in the examination of all dairy products, water samples from beaches, swimming pools, ravines and runoff, well water, surface water, and drinking waters from distribution points. Tests are also provided on foods involved in episodes of suspected food poisoning. The Clinical Laboratory Section provides support for the nursing division, family planning center, VD clinic, child health clinic, and physicals for a multitude of purposes. Testing includes microbiology, serology, pregnancy testing, urinalysis, glucose, cholesterol, sickle cell screening, and blood-lead testing. The Evanston North Shore Health Department also receives additional laboratory support from the Illinois Department of Public Health's Division of Laboratories for positive syphilis serology confirmation, GC penicillin resistance testing, rabies testing, and blood-lead level determinations. Private laboratories provide chemistry profiles and drug analyses when needed, and Pap smears. The University of Illinois provides sickle cell analyses.

D. Morgan County Health Department

The Morgan County Health Department has no laboratory facility, but the following services are provided: plating on Thayer-Martin Medium and transportation of the plate to the Springfield Branch Laboratory of the Division of Laboratories, Illinois Department of Public Health for GC

analysis; field analysis of waters for chlorine, pH, and iron; wet smears for yeast and trichomonas; and pregnancy tests. The Springfield Branch Laboratory provides gonorrhea cultures, syphilis serology, milk testing, private waters, foods, swimming pools, and rabies tests. Large animal heads are sent to the Agriculture laboratory for rabies testing. Local hospitals provide Pap smears and the IEPA laboratory performs required testing on public water supplies. Morgan County experiences the following difficulties in obtaining laboratory services: (1) At times they cannot procure the necessary testing supplies. (2) They related that they would like to receive training from the Division of Laboratories in the tests which they do perform. (3) They would also like to be in a monitoring and standardization of instruments program to ensure a high level of proficiency and quality. (4) For the future, they would like the lead program expanded in key areas which would require additional laboratory testing and expansion of the rubella program which would also require additional testing.

E. Skokie Health Department

The Skokie County Health Department has no functional laboratory even though they have a small space designated as a laboratory. Essentially, there is no laboratory equipment. The following laboratory support is obtained from outside sources. The Division of Laboratories, Illinois Department of Health, provides testing for lead poisoning, swimming pool waters, and animal heads for rabies. The IEPA provides testing on potable water. The Skokie Hospital provides testing for the diabetic screening program. The Evanston North Shore Health Department provides VD screening as well as laboratory testing on some water samples and on some food samples. The Skokie Health Department has experienced problems in specimen collection and transportation to the Division of Laboratories. Also, the nursing homes in the area request annual syphilis serologies, but the Division of Laboratories as yet does not provide them. They would like to be provided with a list of the services and tests which are available through the Division of Laboratories.

F. Springfield Department of Public Health

The Springfield Department of Public Health laboratory provides the following support services: (1) Syphilis serologies, GC cultures, wet preps, gram stains, dark fields, pregnancy tests, and urinalysis in support of the VD clinics. (2) Urinalysis, pregnancy tests, hematocrits, sickle cell screening, and PKU in support of the well-child clinic. (3) RODAC standard plate counts for the restaurant inspection program. The Springfield Branch Laboratory of the Division of Laboratories performs blood leads, salmonella and shigella, influenza, pertussis, water analyses, food analyses, and rabies testing. The influenza specimens are submitted to the Chicago main laboratory through the Springfield Branch Laboratory. Special and confirmatory VD testing is also sent to the Springfield Branch Laboratory. The main laboratory in Chicago provides rubella testing only for diagnostic purposes. Identified needs for laboratory services include: (1) Increased number of blood lead analyses by the Division of Laboratories; and (2) for the Division of Laboratories to expand rubella testing to a greater segment of the population.

G. Will County Health Department

The Will County Health Department has a laboratory division which provides testing in microbiology, hematology, serology, urinalysis, and chemistry. This laboratory provides greater than 90% of all laboratory testing needed by the health department programs in both the clinical and environmental areas. They also provide laboratory support for a 300-bed nursing home which is located next door to the Health Department. The Illinois Department of Public Health's Division of Laboratories provides additional laboratory support in heavy metal testing and animal heads for rabies. The IEPA laboratory provides the more sophisticated heavy metal analyses. Private laboratories are contracted with for Pap smears and T3's and T4's. Future needs for Division of Laboratories support include an expansion of clinical diagnostic testing to support what they identify as the new clinical impetus of public health. They also were handicapped by the Division of Laboratories limiting the number of specimens which can be submitted from any particular health department or client during a given time period. For example, the number and type of toxicology specimens which could be submitted was limited, and they experience long delays in receiving results.

H. Logan County Health Department

The Logan County Health Department does not operate a laboratory. There are, however, some tests done on-site by nursing personnel. These include diabetes screening, dipstick urinalysis, hemoglobins and hematocrits, and GC smears. The majority of their laboratory testing to support programs is obtained from the Springfield Branch Laboratory of the Division of Laboratories: GC cultures, syphilis serologies, private water and semi-private water for coliform and nitrates, TB cultures and sensitivities, salmonella and shigella, lead, sand analyses, throat cultures, rabies testing, and parasites. Pesticides are also sent to Springfield. The influenza specimens are sent to the Springfield Branch Laboratory which forwards them to the main laboratory in Chicago. Other needed testing includes hepatitis A and B obtained from the local hospital, and Pap smears for the family planning clinic are processed at a private laboratory. Surface water samples are submitted to the IEPA laboratory in Champaign. There are several things that the Logan County Health Department would like to see the Division of Laboratories improve upon. (1) The Division of Laboratories should offer hepatitis A and B testing. Availability of this test would improve treatment schedules when physicians want to administer gammaglobulin. In addition, it was believed that the Division of Laboratories would serve a very valuable function if they would provide check samples or proficiency testing samples to the Health Department for the areas in which the nurses do testing. They also would like to see a service manual available which would include specimen collection and the availability of tests. This manual, it was stated, should be made available not only to the health departments, but to hospitals.

I. Tazewell County Health Department

The Tazewell County Health Department also has no laboratory. The nurses do hemoglobins, hematocrits, and urinalyses. The majority of the laboratory work is provided through the Springfield Branch Laboratory. These tests include selective blood leads, VDRL's, and complement fixation on herpes. The nurses of Tazewell County also do their own GC cultures and slides. These GC cultures are being done at the Health Department because of the belief that during the winter months the transportation of the specimen in

the extreme cold seemed to affect the positivity rate. Additional clinical work provided by the Springfield Branch Laboratory includes salmonella and shigella. The Peoria City/County Health Department, at times, does provide some laboratory support to Tazewell County; for example, strep testing. The environmental program has two sources for obtaining laboratory support. Many of the specimens go to the Springfield Branch Laboratory and other specimens to the IEPA laboratory. Some water samples, generally private, are analyzed at the Tazewell County Health Department for coliform, and sometimes hardness and nitrates by available kits. In addition, BOD's are currently done on-site by a method which is described as being a non-approved method. The reason for this is that IEPA would not accept tests from specimens which they (IEPA) do not pick up themselves. The environmental health area experiences difficulty in obtaining laboratory tests. The primary reason for this difficulty is the IEPA and the Illinois Department of Public Health are separate, and their laboratories have individual policies regarding acceptance of specimens and types of specimens. Thus, the local health departments are often caught in situations where they can get neither to perform needed tests.

J. McLean County Health Department

The McLean County Health Department is very much like the previous two health departments. They have no laboratory, but nurses do perform very limited testing on-site. The majority of their laboratory support comes from the Springfield Branch Laboratory. It was stated to the study team that a problem exists in the environmental area. The IEPA does not want to accept specimens from local public health departments which very severely limits the kind of testing that the local health department has available. The Springfield Branch Laboratory sometimes is not able to handle the volume of workload which the local health department would like to submit. The local health department then has to curtail its activities and modify the program to meet the capability of the laboratories.

best copy available

K. Peoria City/County Health Department

The Peoria City/County Health Department does operate a laboratory which performs approximately 50,000 tests per year. Tests offered include syphilis serologies and dark fields, gonorrhea smears and cultures, throat cultures, and salmonella and shigella testing. Parasitology specimens for ova and parasites are sent to a local hospital laboratory. The only problem area identified to interviewers in this health department related to the unavailability of viral laboratory analyses in the downstate area. They would like to have at least diagnostic services for herpes in the lower part of the State.

L. Macon County Health Department

The Macon County Health Department does operate a laboratory. They offer limited services in bacteriology, gonorrhea smears and cultures, hematology, and environmental bacteriology. Other testing is obtained through the Springfield Branch Laboratory and occasionally the IEPA laboratory. This health department, too, has difficulty in obtaining laboratory support in the environmental area. Both the Springfield Branch Laboratory and the IEPA laboratory were indicated as being reluctant to accept very many specimens. This causes the health department to reduce programs for such things as food analysis and water analysis.

M. Champaign-Urbana

The Champaign-Urbana Health Department does not have a laboratory, nor do they require very much laboratory support. GC cultures and syphilis serologies are sent to the Springfield Branch Laboratory as are TB cultures and salmonella and shigella examinations. Rubella screening goes to the Chicago main laboratory. Nurses do gram stains, wet mounts, hematocrits, and dipstick urinalysis. In the environmental area, the only need for laboratory support is an occasional food or water sample in the case of a suspected foodborne outbreak. The environmental activities of this health department are somewhat different from those previously described because it is a city health department only. There are no private water supplies. The State Health Department's Regional Office covers everything else in the county outside of the city.

N. Seven County Health Department

This Health Department covers seven counties in the southernmost part of Illinois. There is one laboratory technician on the health department staff who assists in laboratory analyses at the various clinics. Basically, laboratory support is obtained through the Carbondale Branch Laboratory with more sophisticated testing being sent to Springfield or Chicago. Environmental laboratory support is through the Carbondale Laboratory. The only difficulty mentioned with laboratory services was a delay in receiving results on syphilis serologies, since they were no longer available through the Carbondale laboratory.

O. Johnston City Health Department

The Johnston City Health Department uses all three of the State Public Health Laboratories and the IEPA laboratory in Marion. Private water samples, throat cultures, and GC cultures are done at the Carbondale Branch Laboratory. Water chemistries are sent to Springfield or to the IEPA laboratory in Marion, depending upon which laboratory will accept the specimen. Syphilis serologies and TB cultures also go to Springfield. The Chicago laboratory provides the viral and rickettsial analyses which are needed. The only problem related to the study team regarding problems with laboratory services is the long delay experienced in receiving laboratory reports from IEPA and Public Health.

P. Murphysboro Health Department

The Murphysboro Health Department provides hematocrits, urinalysis, pregnancy testing, and hemoglobins through nursing personnel of the Health Department. Water specimens are sent to the Carbondale Branch Laboratory. Stools for ova and parasites also go to Carbondale. GC cultures are also provided from the Carbondale laboratory. Syphilis serologies and other serologic analyses are provided through the Springfield Branch Laboratory or are forwarded to the Chicago main laboratory for processing. Some testing, such as clinical chemistries, are done at a local laboratory. TB cultures are also processed in the Springfield laboratory. Problems identified by the Health Department in obtaining laboratory services include laboratory reporting delays, no dark field capability in the area,

limited availability of rubella testing, and inavailability of hepatitis A and B. Additional needs in the environmental area include the present need for BOD testing and herbicide testing. The Health Department stated they also need a manual containing instructions on how to collect and transmit laboratory specimens.

V. GENERAL FINDINGS AND RECOMMENDATIONS

This section presents the findings and subsequent preliminary recommendations of Phase II of this study. The use of the term preliminary needs further explanation. The recommendations made in this report are directed solely to the Department of Public Health laboratory system. If the Illinois Department of Public Health (IDPH) was the only department included in the study, we would make the recommendations for improvement within the system without reservation. However, there are two other department laboratory systems which are being studied. Data obtained from the other two phases of this study may result in the study team altering and modifying some of these recommendations. For example, one of the recommendations contained in this report concerns the development of a "Procedure and Service Manual," to be distributed to physicians, hospitals, and local health departments. This recommendation could be altered if the services of the IDPH laboratories are greatly expanded as a result of findings in Phase I and Phase III of this study. The actual contents of the Manual is dependent upon the final recommendations which take into consideration the needs and resources of all three departments.

For this reason, we suggest that none of the following recommendations be implemented by the Department of Public Health until the final report has been prepared, reviewed, and approved by the Governor's Task Force Committee on Recommendation #518.

RECOMMENDATIONS:

1. The Department of Public Health, Division of Laboratories, needs to develop a strong central image.

Interviews conducted with Division of Laboratories personnel, Public Health Department program personnel, and local health department representatives, strongly indicated that there is no perceived central laboratory serving public health in Illinois. Laboratory supervisory personnel generally had their primary identity with the section or branch with which they were associated. The laboratory supervisors saw themselves as "belonging to" the Carbondale Branch Laboratory or to the Springfield Branch Laboratory or to the Microbiology Section or to the Virus Section. This conception of separation was also evident at the State Public Health

Department program level and the local health department level. Invariably, these health representatives identified the source of their laboratory support as "the Carbondale Laboratory," or "the Springfield Laboratory," or "the laboratory in Chicago." Some individuals regarded the laboratory in Chicago as the central laboratory and the Springfield laboratory and the Carbondale laboratory as regional laboratories. Others stated that the Springfield laboratory was the central laboratory, the Chicago branch was a "specialty" laboratory, and the Carbondale facility was a regional laboratory.

The confusion that exists regarding the laboratories and their services reduces the overall effectiveness of the Division of Laboratories. The local health department personnel do not have a clear picture of what specimens can be done at which of the three branches. For example, rubella serologies for diagnostic purposes are available through the main laboratory in Chicago. However, because the tests are not available through the Springfield or Carbondale laboratories, health department personnel will often not submit the specimens because it is not available through "their" laboratory.

There are two major actions which can help resolve the problem of "poorly developed image." The Organizational Study, Division of Laboratories, March 19-28, 1979, conducted by Dr. Richey Elwell, Mr. Raymond Schrunk, and Mr. Walter Guest, recommends, "The Division of Laboratories should become a Bureau and take its organizational place alongside other public health 'line' programs, such as family health, disease control and health data." This organizational realignment would enhance the image of the Division of Laboratories and more accurately reflect their overall services to all phases of public health in Illinois. There are other organizational changes contained in the previously mentioned study which would enhance the internal image of the Division of Laboratories supervision. Those recommendations should be reviewed and implemented, if at all possible.

The second action which will improve the central image of the Division of Laboratories is the development and distribution of a manual which describes the services available through the Division. This manual is described in further detail in the following recommendation of this report.

2. The Division of Laboratories needs to develop and distribute a Laboratory Manual which describes the services of the Division.

The need for this manual was evident in every health department which we visited. The local health departments had inadequate information regarding availability of testing services, location where services were available, proper methods of specimen collection and specimen shipment requirements. The laboratory service manual needs to include: a complete listing of testing services available; county by county designation describing where the specimens should be sent; a step by step description of proper specimen collection techniques; and, instructions on specimen shipment.

Other items which should be included in the laboratory manual are: availability and schedule of laboratory training; availability and source of laboratory consultations; availability of quality assurance activities such as proficiency testing programs and on-site inspections; and, descriptions of the other resources in the Division of Laboratories, such as laboratory certification, special surveillance projects and public relations activities.

The distribution of this manual should be to State and regional health department personnel, city and county health departments, hospital laboratories, private physicians and clinics, and other agencies which conduct public health related programs.

Services provided by the Division of Laboratories are generally in response to needs generated by public health programs. Because the public health programs are constantly changing, the services available through the Division of Laboratories must also change. Thus, the manual development should allow for periodic updating. One way to handle this is to use a "loose leaf" approach, and then on a regular or "as needed" basis, new pages can be provided to the manual owners so that they can add new information or delete obsolete instructions.

3. The Division of Laboratories needs to increase its capacity for handling a greater volume of tests.

The major difficulty related to the study team by the local and regional health units was the limitation placed upon their programs by the unavailability of laboratory support. In just about every instance, health depart-

ment personnel told of cases where the laboratory restricted the number of samples which could be submitted. Although the problem included public health clinical specimens, i.e., rubella serologies, it appeared to be more severe for environmental samples such as water chemistries and food bacteriology. Table 1 showed that the number of specimens and the number of tests of the Division of Laboratories has decreased slightly during the most recent year, even though our interviews suggested that the current demand for laboratory services is not being met. The ability of the Division of Laboratories to adequately meet the needs is dependent upon the availability of laboratory personnel, space and equipment. The Springfield Branch Laboratory, for example, is so overcrowded that even if personnel and equipment were available, they could not be housed properly.

The Division of Laboratories is severely overtaxed in many of its operations. The loss of one chemist in the Springfield Laboratory resulted in almost a complete loss of laboratory support for the Nuclear Division of Environmental Health. The solution to this problem is more people, more space, and more and better equipment. Division of Laboratories personnel are quite knowledgeable about the "problem" testing areas. Their knowledge, combined with the information contained in Sections III and IV of this report, should provide sufficient data to establish a priority list for additional resources. It is hoped that the State of Illinois would then provide the needed financial support to convert the priority list of needed resources into actual people, space, and equipment.

4. <u>The Division of Laboratories needs to expand the range of testing services beyond that which is currently available</u>.

Sections II, III, and IV of this report denote those tests which are needed but are not available through the Division of Laboratories. As previously mentioned, public health is constantly changing, creating needs for added laboratory support. Legionnaire's Disease and the Federal Safe Drinking Water Act are prime examples of recent changes which affect the laboratory. Some of these needs for new laboratory services, BOD's, pesticides, hepatitis A and B, are identifiable now. Other needs will occur in the future.

The Division of Laboratories should undertake two activities. First, utilizing the data in this report and the experiences of the supervisory

personnel of the laboratory, a list of needed tests should be developed and ranked according to the severity of need. Those tests with the highest priority should be added now. Other tests should be added at later dates when resources become available. Determining when to add these other tests is the second of the activities which should be undertaken by the Division of Laboratories. Because a health department wants a particular test to be available is not sufficient justification for the test to be added. Other factors include, alternate sources for obtaining the test, number of tests to be conducted, usefulness of the test and set-up and operating costs. On a regular basis, the Division of Laboratories should query the public health providers to determine what additional tests are being requested. There requests should then be compared to the other criteria which were listed above. The decision to add a specific test would then depend on the results of this quantifiable comparison. This process should also be applied to the decision of whether or not to delete a specific test.

5. The Division of Laboratories needs to improve its reporting procedures.

A common complaint voiced to the study team was the long time lags in getting back laboratory test results. Part of the difficulty can be explained by the inadequate number of personnel, space, and equipment, which was pointed out in the third and fourth recommendations of this report. If sufficient resources are not available to do the required number of tests on a timely basis, then the testing must be delayed. Testing delays obviously mean reporting delays. The delayed testing aspect of the reporting problem can only be solved when adequate laboratory personnel are available.

However, there are other aspects of the reporting delay problem. First, there does not appear to be a standard system for reporting laboratory results. In some instances, it was reported to the study team that laboratory reports were sent through the public health regional office and then routed from there to the original submitter. In other cases, it was reported that the laboratory report was returned to the original submitter, or local health department, and that the regional office simultaneously received its copy. The extra handling

required to report a test result through an office would result in delayed reporting. The Division of Laboratories should study the needs for test results of the various State, regional, and local health programs, and establish a reporting system which is responsible to the priority needs (i.e., disease outbreaks, illnesses, hazardous spills), but still provides data for the lower priority needs (i.e., surveillance).

Second, there does not appear to be an effective system which allows laboratory users to check on the status of a particular testing request. Regardless of how many precautions are taken, some specimens will be lost, damaged, or in some other way unsatisfactory. Some local health departments maintain a file indicating when a specimen is shipped, and thus, they have a rough idea when the test results should be reported. If the report is not forthcoming, they attempt to find out the status of that laboratory report. Their search, as reported to the study team, is generally with "whoever answers the phone." The Division of Laboratories should establish an internal system to identify the current status of a request in each of the three facilities. Such a system would be of great benefit to the user of the laboratory. It could also benefit the laboratory if valuable professional and technical time is currently being used in "searching for specimens."

The third system which should be developed by the Division of Laboratories is a rapid reporting of significant test findings. These significant test findings should include all positives for disease diagnosis, negatives when clinical symptoms or illness is evident, and other emergency type testing when severe or threatening conditions exist. These tests would be treated as if they were "stat" requests in a hospital laboratory. The Division of Laboratories, working with the appropriate health department personnel, should identify the conditions which constitute a "stat" request. These developed criteria would then be distributed to the users of the laboratory so that they could then request and be assured of rapid service for special and emergency situations.

6. <u>The Division of Laboratories needs to provide more training, consultation, and quality assurance programs to the city and county health department personnel</u>.

Local health departments provide much of the basic laboratory testing needed for their programs. There are two services which the Division of Laboratories needs to expand. First, some local health departments have their own laboratories. They range in size from the City of Chicago Health Department laboratory, (which is larger than the Division of Laboratories), to the one person operation in the Seven County Health Department. These laboratories generally requested an expanded training and consultation effort from the Division of Laboratories. They specifically requested an expanded quality assurance program. We are aware that the Division of Laboratories is currently working very hard to improve their relationship and service to the local health departments. Thus, we include this recommendation only to show our support of this needed activity.

The second area of need in the local health departments concerns a different source of laboratory services. In most local health departments, nurses are required to do fundamental clinical laboratory analyses. These include, hematocrits, hemoglobins, urinalysis, pregnancy tests, occult blood, GC smears, and sometimes even GC cultures. These nurses generally described their laboratory training as inadequate, i.e., "The sales representative taught us," or "The nursing supervisor taught me." Unfortunately, the nurses generally have not had the opportunity to learn adequate laboratory techniques. They have very limited knowledge of instrument calibration, standards and controls and standard methodologies. The Division of Laboratories should establish a basic laboratory training course for health department nurses. To insure continued laboratory testing accuracy, the Division of Laboratories should develop and conduct an on-going proficiency testing program for the basic procedures conducted by these nurses.

ENVIRONMENTAL CONSIDERATIONS:

Recommendation #518 includes consideration of only clinical laboratory testing. Thus, the study we are conducting and the preceeding recommendations are applicable to clinical testing. However, during the course of our study, we were made aware of many problems which are specific to the environmental and non-human laboratory analysis. State, regional and local offices reported difficulty in obtaining laboratory support. The major difficulty appears to be the absence of a policy defining responsibilities and authorities of the various activities. Public Health and Environmental Protection have individual program goals, but the laboratory support can be quite similar. Food and Drug and Public Health food programs also have similar laboratory needs. Various State, regional, local and Federal laboratories are attempting to provide the laboratory support needed by the individual programs. It appeared to the study team that the current laboratory system was creating duplication of services in some areas and a deficiency or absence of services in other areas. It is important to point out that just because a state agency's laboratory performs a specific test, that test is not always available to the local or regional personnel who are attempting to conduct the various programs. Availability of environmental laboratory analyses was described as a major problem by the local health personnel. However, our study did not include all users of environmental laboratory resources, so we cannot identify the complete extent of the problem. However, sufficient evidence does exist for us to recommend that the Division of Laboratories initiate a study to dermine the full extent of problems relating to environmental laboratory testing. In order for such a study to be effective, it must be conducted with the full cooperation of the various State agencies which utilize and/or provide environmental laboratory analyses.

ILLINOIS STATE HEALTH DEPARTMENT PROGRAMS

Agency _____

Program _____

Person Interviewed _____

Position, etc. _____

_____

1. Overview - Discuss program. Copy of descriptive material, annual report, etc.

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2. Lab service support for your program (current)

A. Types of support (tests) needed

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(1) Provider of this support (SPHL, local, private) - (name and address of providers)

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(2) Any costs (annual estimate)

(3) Support other than tests (especially by SPHL) - Training, PT, consultation, etc.

(4) Difficulties in obtaining lab support (from any source)

3. Lab service support for your program (future) - get same basic information as in 2, above.

ILLINOIS STATE PUBLIC HEALTH LABORATORY DIRECTORS
(Chicago, Springfield, Carbondale)

Laboratory and Director _____

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1. Overview

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2. Review quantitative data

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3. Needs, problems, difficulties in providing services (personnel, equipment, client problems, transportation, facility)

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4. New tests for lab or discontinue some (why?)

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_____

5. To increase workload, what would be required? (Space, people, $)

6. Relationships with local health departments, other agency labs, i.e., Mental Health, Corrections, etc. (What work do you do for them and vice versa?)

7. Describe how the State laboratory system should operate. (How would you accomplish such a new direction?)

8. Specific recommendations on future testing activities (who should be doing what?)

ILLINOIS STATE PUBLIC HEALTH LABORATORY (CHICAGO)
Section Chiefs

Person Interviewed _____

Section _____

1. Needs, problems, difficulties in providing services (personnel, equipment, client problems, transportation, facility)

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2. New tests for lab or discontinue some (why?)

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3. To increase workload, what would be required? (Space, people, $)

_____

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4. Relationships with local health departments, other agency labs, i.e., Mental Health, Corrections, etc. (What work do you do for them and vice versa?)

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5. Describe how the State laboratory system should operate (How would you accomplish such a new direction?)

6. Discuss "source of specimens" table (they prepared this earlier and should have available to discuss) - look it over carefully to assure your understanding and discuss with Section Chief in relation to study objectives.

ILLINOIS LOCAL PUBLIC HEALTH LABORATORIES

Agency _____

Program _____

Person Interviewed _____

Position, etc. _____

_____

1. Description of Activities (Annual Report, etc.) - (Also size of lab, workload, dollars, etc., but only if easily available)

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2. Do you support any other programs/agencies outside local health department?

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3. What do you send to a public health laboratory? (Which one - Chicago, Springfield, Carbondale)

_____

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4. Does anyone else do any lab work for your local health department? (if so, who and what?)

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5. Expectations of State Public Health Laboratory system:

A. Current test support

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B. Future test support

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C. Other (PT, consultation, training, etc.)

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ILLINOIS

LOCAL HEALTH DEPARTMENT PROGRAMS
(Should include Health Officer, Nursing, Laboratory, etc.)

Agency _____

Program _____

Person Interviewed _____

Position, etc. _____

_____

1. Overview (Description/discussion of program/department activities. Copy of descriptive material--annual report, etc.)

_____

_____

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2. Lab service support for your program (current)

   A. Types of support (tests) needed

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   (1) Provider of this support (your own lab, SPHL, private, etc.) - be specific--names and locations

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   _____

(2) Any costs (annual estimate)

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(3) Support other than tests (especially by SPHL) - Training, PT, consultation, etc.

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(4) Difficulties in obtaining lab support (from any source)

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3. Lab service support for your program (future) - get some basic information as in 2, above.

_____

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4. Any reimbursement for lab work (Medicaid, DPA, others)

A. From whom

_____

_____

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_____

B. Estimate workload and dollars

_____

_____

_____

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ATTACHMENT 3

Phase III

A STUDY OF THE LABORATORY SYSTEM

STATE OF ILLINOIS

Department of Public Aid

Study by: Raymond L. Schrunk, Management Consultant,
Laboratory Management Consultation Office

William D. Adams, Management Consultant,
Laboratory Management Consultation Office

H. Arnold Hicks, Management Consultant,
Laboratory Management Consultation Office

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
Bureau of Laboratories
Atlanta, Georgia 30333

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I. BACKGROUND

On September 5, 1978, the Director of Public Health, State of Illinois, initiated a letter to the Director, Illinois Department of Public Aid (DPA); and the Director, Illinois Department of Mental Health and Developmental Disabilities (DHMDD). The letter proposed the establishment of a study committee from the three agencies to respond to the Governor's Cost Control Task Force Recommendation No. 518:

> "Use Public Health facilities to do laboratory work for the Departments of Public Aid and Mental Health."

Dr. Hugh-Bert Ehrhard, Chief, Division of Laboratories, was appointed as the State Health Department's representative. Dr. John Nelson, Coordinator of Medical Services, DMHDD, and Mrs. Wilma Gay, Program Coordinator, Bureau of Provider Services, DPA, represented their agencies on the committee. The committee met on November 16, 1978, at the Division of Laboratories office in Chicago. At the first meeting, the committee discussed the Task Force recommendation and its effect on the three agencies. After that initial meeting each of the committee members began to collect data on the laboratory services of their agencies. Mrs. Gay provided computer printouts of DPA independent certified laboratory service costs in Cook County. Dr. Nelson requested data from all of the DMHDD facilities regarding laboratory services.

Dr. Ehrhard, the committee chairman, in a February, 1979, progress report to the State Health Department, indicated that he wanted to request assistance from the Center for Disease Control (CDC) in Atlanta, Georgia. On March 30, 1979, Dr. Ehrhard did request assistance from Dr. Edward L. Cavenaugh, Director, Laboratory Management Consultation Office, Bureau of Laboratories, CDC. Dr. Cavenaugh asked Mr. Brian Dugan and Mr. Bill Adams to meet with Dr. Ehrhard at the annual meeting of the Association of State and Territorial Laboratory Directors. These discussions were conducted on April 8, 1979, to determine the best method of providing assistance to the Illinois Governor's Cost Control Task Force Committee.

Mr. Dugan then met with the committee in Springfield, Illinois, on April 26, 1979. It was at this meeting that the type of consultation assistance that CDC would provide to the study committee was identified. Dr. Ehrhard then finalized the consultative request in a letter to Dr. Cavenaugh, May 2, 1979. Plans were

made to divide the overall question (Recommendation #518) into three study phases. The rationale for this approach was that, before any recommendations could be developed, each agency's laboratory service needs and resources had to be identified.

On September 25, 1979, Mr. Arnold Hicks and Mr. Ray Schrunk traveled to Baltimore, Maryland and Washington, D.C., to meet with Federal officials of the Department of Health, Education, and Welfare. They spent three days meeting with officials of the Medicaid program discussing the legal and regulatory aspects of the Medicaid program.

From November 5-8, 1979, Mr. Adams and Mr. Schrunk met with Illinois DPA officials to gather data and discuss the laboratory needs and resources of the DPA.

Phase I (May-July) is a review of the current and future laboratory service needs and resources of the DMHDD. Phase II (July-September) is a review of the State Public Health Department's laboratory needs and resources. Phase III (October-December) addresses the DPA independent clinical laboratory program.

The following report is a summary of the Phase III activities of the CDC consultant team.

II. INTRODUCTION

The basic objective of the study is to determine the feasibility of the Governor's Cost Control Task Force Recommendation #518: "Use Public Health facilities to do laboratory work for the Departments of Public Aid and Mental Health." This phase of the study, Phase III, was initially to be a review of the Illinois Department of Public Aid's (DPA) laboratory needs and services.

However, throughout Phase I and Phase II, it became increasingly clear that another major factor must be addressed in Phase III: The Public Aid laboratory services included in Recommendation #518 are services governed by the regulations of the Federal Medicaid program, and those regulations contain specific limitations on the state's ability to do certain things.

The Medicaid program, Title XIX of the Social Security Act, is a Federal program, administered by the states under Federal guidelines and is jointly funded by Federal and state governments. The Federal contribution to the cost of the program ranges from 50 percent to 77.55 percent. The Medicaid program is administered by the state within certain broad Federal requirements and guidelines. Title XIX of the Social Security Act requires that certain basic services must be offered in any state Medicaid program. One of these "required services" is laboratory services. The Social Security Act specifies limitations on how the states may provide some services, including laboratory services. Because of these limiting Federal regulations, Phase III was expanded to include a thorough investigation into the regulations governing the Medicaid program and to investigate the potential legal ramifications of adopting Recommendation #518.

Therefore, this report will include the laboratory needs and resources of the DPA and a summarization of our findings regarding the regulatory and legal aspects of the Medicaid program as it relates to laboratory services.

III. FINDINGS

A. Overview of DPA Laboratory Services

The Illinois Department of Public Aid will be referred to as DPA for the remainder of this report. The laboratory services will be those which are a part of the Federal Medicaid program and administered in Illinois by the DPA through their Medical Assistance Program. These services are provided by laboratories licensed by the State and enrolled to participate in the Medical Assistance Program. For purposes of the study, DPA laboratory services will be those performed by private laboratories. Although a great deal of Medicaid laboratory testing is performed in hospitals, nursing homes, clinics, etc., that workload does not lend itself to the considerations of this study.

B. Illinois DPA Laboratory Needs and Resources

In November, 1979, the consultants met in Springfield with officials of the Illinois DPA to obtain whatever information was available regarding the DPA laboratory needs and services. We met with personnel from Medical Programs, General Services, and Counseling/Litigation. This was a fact-finding trip, and we were given a great deal of information, charts, etc., which contained sufficient information to give us a good understanding of the DPA laboratory services. The tables on the following pages provide a summary of that information which is the most relevant to our study.

Table 1 shows figures taken from the Illinois DPA Medical Assistance Annual Report for Fiscal Years 1976-1977-1978. They are presented to show the magnitude of the medical assistance and laboratory programs.

Table 2 is a listing of the laboratory tests utilized most frequently by the Public Aid program and provided by certified independent laboratories. For calendar year 1978, we have listed all tests with total annual payments of $1,000 or more. We have also noted on this table those tests with annual payments of $10,000 or more. This information can be compared and analyzed with the workload and resources data from the Departments of Public Health and Mental Health and Developmental Disabilities. We also

have this information for January 1979 through September 1979. The test utilization follows the 1978 trend. An analysis of this data revealed that only 17 different tests incur charges of $100,000 or more. Only 36 different tests have charges of $50,000 or more.

The 17 tests with payments of over $100,000 are:

Procedure	Total Payment
Chemistry Profiles	$1,206,216
Blood-Count Complete Includes RBC, WBC, HGB, Differential	691,256
Routine Urinalysis, Complete	505,570
Thyroid Tri-Iodo-Thyronine, T-3, or Thyroxine, T-4, Uptake, Radioactive	501,990
Blood-Count Complete Automated, Cell Counts, Hematocrit, Hemoglobin and Indices	489,711
Cytopathology Smears as Papanicolaou Type, Genital Source	384,826
Culture Definitive Including Sensitivity Study, for Specific Microorganisms, with Isolation or Organism, Sources Other than Blood	283,154
Chorionic-Gonadotropin Pregnancy Test Blood or Urine, Immunologic Technique, Qualitative	240,700
Other Chemistry Profiles	223,248
Sugar Glucose Blood	203,004
Culture Screening for Organism, Including Sensitivity Study, Sources Other than Blood	166,113
Sickling of Red Blood Cells	161,616
Sedimentation Rate, ESR	121,021
Iron Serum Binding Capacity, Chemical	117,711
Cytopathology Smears with Review Including Hormonal Evaluation, Cytogram, Maturation Index, Estrogen Activity, Etc.	116,666
Thyroid Thyroxine T-4, Murphy-Pattee or Nakajima	109,158
Throat Culture	103,284

Table 3 lists the highest paid laboratories (paid $10,000 or more for 1978). These are listed in descending order of dollar volume and also show the county in which the laboratory is located. As expected, the bulk of them are in Cook County. Only 23 laboratories account for over 75% of the billings.

Table 4 lists the charges and payments for 1978 by county. Cook County accounts for 93% of the total State payments. This table also shows what percent of the laboratory charges are actually paid by the State.

Table 5 lists the laboratory tests which are provided by the Public Health laboratories to Public Aid recipients without charge. The footnotes on this table are important to its understanding, as they spell out a number of exceptions. These exceptions limit the Statewide availability of many of these tests and the table, therefore, does not serve as an indication of Public Health laboratory capability to provide services to the DPA.

TABLE 1

Overview of Illinois Medical Assistance Program, 1976-1978

	FY 76	FY 77	FY 78
Medical Assistance Program			
Average No. of Medicaid Eligibles*	1,087,549	1,062,722	1,018,224
Participating Providers			
1. Physicians	13,837	14,611	14,863
2. Laboratories	172	182	180
Certified Independent Clinical Laboratory Services Utilization			
Total expenditures ($ millions)	$8.4	$8.5	$7.4
Total # of claims	517,123	517,431	506,082
Average payment per claim	$16.15	$16.44	$14.58
Average annual # of claims per Medicaid eligible	.47549	.48689	.49702
Average annual expenditure per Medicaid eligible	$7.68	$8.00	$7.25

*This refers to the number of clients who are eligible to receive medical assistance and who are potential users of laboratory services.

TABLE 2

ILLINOIS DEPARTMENT OF PUBLIC AID

Laboratory Tests with Payments Totaling $1,000 or More
For Calendar Year 1978

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Routine Urinalysis, complete	172,329	$505,570	164,052	$481,395	$ 2.95	X
Urinalysis, quan. sed. analysis	1,162	5,802	4	20	4.99	
Albumin serum albumin/globulin	783	2,196	773	2,168	2.81	
Amylase blood	3,232	25,171	3,132	24,451	7.79	X
Barbiturates, blood qual.	188	1,880	103	1,030	10.00	
Barbiturates, blood quan.	140	1,403	65	654	10.03	
Bilirubin blood total	3,707	5,882	3,588	5,547	1.59	
Bilirubin blood direct	1,148	1,445	1,132	1,406	1.26	
Calcium blood chem.	1,981	3,731	1,926	3,532	1.88	
Calcium blood emission flame photometry	463	1,346	459	1,326	2.91	
Carbon monoxide blood	1,002	2,035	1,001	2,030	2.03	
Chlorides blood chem.	12,374	17,106	11,455	15,726	1.38	X
Chlorides blood electrometric	1,725	6,557	1,721	6,537	3.80	
Cholesterol blood	11,870	35,739	11,753	35,288	3.01	X

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Creatine Blood	507	$ 1,061	505	$ 1,061	$ 2.09	
Creatine - Phosphokinase	1,960	10,919	1,900	10,595	5.57	X
Creatine - Phosphokinase CPK blood, colorimetric	2,165	14,008	2,135	13,838	5.57	X
Creatinine blood	7,543	12,933	7,306	12,325	1.71	X
Digitalis blood	316	4,731	213	3,186	14.97	
Diphenolhydantoin blood	85	2,212	68	1,762	26.02	
Diphenolhydantoin, dilantin, blood	934	17,576	396	7,060	18.82	X
Folic acid, blood	127	1,365	62	423	10.75	
Gases blood carbon dioxide content, arterial or venous volumetric, Van Slyke	2,753	5,799	2,474	4,902	2.11	
Glucose-6 - Phosphate dehydrogenase, erythrocyte	5,766	65,725	5,756	65,657	11.40	X
Glutamine, glutamic acid amide, spinal fluid	251	1,505	246	1,480	6.00	
Hemoglobin electrophoretic separation* hemoglobin, colorimetric	5,210	77,511	4,311	64,564	14.88	X
Hemoglobin S, sickle, chemical	13,364	66,616	13,258	66,086	4.98	X

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Hemoglobin methemoglobin electrophoretic separation	142	$ 2,502	140	$ 2,474	$17.62	
Hemoglobin sulfhemoglobin qualitative	1,835	9,059	1,830	9,030	4.94	
Chorionic-gonadotropin pregnancy test blood or urine, immunologic technique, qualitative	30,804	240,700	28,808	226,374	7.81	X
Chorionic-gonadotropin pregnancy test blood or urine, immunologic technique, quantitative	6,929	62,535	6,623	60,329	9.03	X
Chorionic-gonadotropin pregnancy test bioassay, quantitative	126	1,292	103	1,113	10.25	
Corticoids 17-OH-corticosteroids blood, fluorometric method, initial	44	645	34	495	14.66	
Estriol pregnancy urine	82	1,222	20	343	14.90	
Pituitary ganodotropins, FSH, bio-assay	50	1,234	26	650	24.68	
Testosterone blood	35	870	17	340	24.86	
Thyroid protein-bound iodine, PBI, blood	4,598	45,784	4,532	45,218	9.96	X

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Thyroid tri-iodo-thyronine, T-3, or thyroxine, T-4, uptake, radioactive	36,381	$501,990	35,435	$491,791	$13.80	X
Thyroid thyroxine T-4, by column	4,778	30,945	4,597	29,947	6.48	X
Thyroid thyroxine T-4, Murphy-Pattee or Nakajima	10,974	109,158	10,763	107,182	9.95	X
Thyroid thyroxine T-4, free	4,500	66,408	4,137	61,533	14.76	X
Thyroid index, includes thyroxine by column and T-3 or T-4 uptake	5,770	83,276	5,436	79,472	14.43	X
Thyroid stimulatine hormone, TSH	1,198	27,914	1,128	26,233	23.30	X
Iron serum chemical	12,101	96,143	11,960	95,066	7.95	X
Iron serum binding capacity, chemical	11,990	117,711	11,807	115,947	9.82	X
Iron serum binding capacity, chemical, automated	135	402	107	321	2.98	
Isocitric-dehydrogenase IDH blood, colorimetric	155	775	155	775	5.00	
Lactic-dehydrogenase LDH blood, kinetic ultraviolet method	764	4,745	710	4,485	6.21	
Lactic-dehydrogenase LDH blood, colorimetric or fluorometric	2,590	6,523	2,552	6,365	2.52	

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Lactic-dehydrogenase LDH blood, isozymes, chemical separation	324	$ 1,549	321	$ 1,537	$ 4.78	
Leucine-amino-peptidase LAP blood, colormetric	120	1,200	120	1,200	10.00	
Lipase, blood	1,662	13,135	1,653	13,070	7.90	X
Lipids blood total	1,589	13,743	1,584	13,099	8.65	X
Lipids blood total & fractionated	2,471	28,675	2,469	28,645	11.60	X
Lipoprotein, blood electrophoretic SEPA	459	3,888	448	3,796	8.47	
Lipoprotein, blood, electrophoretic separation and quantitation* ultracentrifugation, analytic	2,237	33,181	2,208	32,759	14.83	X
Lithium, blood, quantitative	1,407	12,704	618	8,743	9.03	X
Phosphatase acid blood	130	406	114	316	3.12	
Phosphatase alkaline blood	3,817	11,559	3,696	11,176	3.03	X
Phosphorus blood	535	1,170	505	1,082	2.19	
Potassium blood	23,254	39,059	21,388	33,944	1.68	X
Protein serum total, chemical	715	1,247	700	1,204	1.74	

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Protein serum total, refractometric	699	$ 1,873	695	$ 1,861	$ 2.68	
Protein serum total, electrophoretic fractionation and quantitation	1,553	19,015	1,497	18,343	12.24	X
Protein serum total and albumin/globulin ratio	1,731	12,892	1,696	12,727	7.45	X
Sodium blood	21,298	41,623	19,927	37,688	1.95	X
Sugar glucose blood	46,600	203,004	41,756	181,369	4.36	X
Sugar glucose blood, tolerance	705	10,313	606	8,839	14.63	X
Thymol turbidity, blood	882	1,154	880	1,148	1.31	
Transaminase blood glutamic oxaloacetic, SGOT, timed kinetic ultraviolet method	2,115	7,746	1,938	16.412	3.66	
Transaminase blood glutamic oxaloacetic, SGOT, colorimetric or fluorometric	3,560	15,233	3,504	15,024	4.28	X
Transaminase blood glutamic pyruvic, SGPT, timed kinetic ultraviolet	1,783	3,900	1,529	3,338	2.19	
Transaminase blood glutamic pyruvic, SGPT, colormetric or fluorometric	5,080	8,305	5,056	8,248	1.63	

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Triglycerides	12,029	$ 71,784	11,437	$ 68,256	$ 5.97	X
Urea-nitrogen blood	22,190	74,715	21,300	70,900	3.37	X
Uric-acid blood chemical	11,258	24,357	9,998	23,238	2.37	X
Vitamin-A blood including carotene, vitamin B-12, isotope	48	95	21	15	1.98	
Bleeding time	368	736	324	648	2.00	
Blood-count complete includes RBC, WBC, HGB, differential	117,147	691,256	110,290	652,806	5.90	X
Blood-count complete automated, cell counts, hematocrit, hemoglobin and indices	81,860	489,711	77,764	466,187	5.98	X
Blood-count white blood cell count, WBC	426	771	202	372	1.81	
Blood-count differential, WBC, count	9,451	21,213	9,290	20,799	2.24	X
Blood-count hemoglobin, colorimetric* other hemoglobin determinations	3,259	6,277	2,091	4,123	1.93	
Hematocrit	6,782	9,105	4,433	6,388	1.34	
Coagulation time, Lee and White	270	1,246	250	1,162	4.61	

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Blood-count eosinophile	558	$ 1,675	538	$ 1,615	$ 3.00	
Platelet count Rees-Ecker	2,124	6,355	1,832	5,483	2.99	
Platelet count phase microscopy	1,192	4,199	1,080	3,767	3.52	
Prothrombin time	3,802	16,102	3,043	12,942	4.24	X
Reticulocyte count	6,505	19,329	6,246	18,561	2.97	X
Sedimentation rate, ESR	31,816	121,021	31,103	118,547	3.80	X
Sickling of red blood cells	32,917	161,616	31,708	155,778	4.91	X
Thromboplastin-time partial, PTT	661	4,593	543	3,785	6.95	
Antibody screening test	1,140	5,612	894	4,438	4.92	
Antibody titer, as RA A, B, leucocyte, platelet or others, albumin or saline technique	378	1,903	134	801	5.04	
Anti-nuclear antibodies	1,174	11,640	978	9,707	9.91	X
Anti-streptolysin O titer	10,500	97,448	10,338	95,948	9.28	X
Blood grouping A and B	10,538	31,330	9,519	28,485	2.97	X
Blood Rh typing	10,195	37,735	9,153	34,005	3.70	X
C-reactive protein	10,140	38,937	10,034	38,522	3.84	X
Coombs test direct	1,971	9,775	1,942	12,404	4.96	

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Coombs test indirect, qualitative	469	$ 2,119	218	$ 1,090	$ 4.52	
Coombs test indirect, quantitative	130	650	120	600	5.00	
Hemagglutination inhibition	490	4,765	445	4,394	9.72	
Hemagglutination inhibition	497	4,111	250	2,705	8.58	
Heterophile-antibodies screening includes mono-type test	458	-0-	349	-0-	Not Shown	
Immunoelectrophoresis serum	327	5,835	320	5,709	17.84	
Immuno-globulins quantitative by gel diffusion, IGA, IGD, IGE, IGG, and IGM	1,238	7,849	1,222	7,606	6.34	
Latex-fixation anti-nuclear protein	328	1,760	298	1,614	5.36	
Latex-fixation L-E factor, slide test	493	2,465	479	2,395	5.00	
Latex-fixation rheumatoid factor	10,251	50,879	10,011	49,709	4.96	X
L-E cells, smear method	1,569	12,158	1,487	11,534	7.75	X
Rubella H-I	438	-0-	155	-0-	Not Shown	
Serologic-test for syphilis, complement fixation, Kolmer or RPCF, quantitative	161	-0-	78	-0-	Not Shown	

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Serologic-test for syphilis, flocculation or precipitin, VDRL, etc., qualitative	2,879	$ 16	2,091	$ 3	$ .01	
Serologic-test for syphilis, flocculation or precipitin, VDRL, etc., quantitative	1,420	-0-	1,358	-0-	Not Shown	
Microscopic-examination initial stain FO	183	349	178	341	1.91	
Microscopic-examination initial stain for bacteria, fungi, parasites, ova, inclusion bodies, any source	10,147	29,614	6,301	18,821	2.92	X
Microscopic-examination initial wet mount for bacteria, fungi, parasites, ova, inclusion bodies, any source	790	2,990	620	2,418	3.78	
Microscopic-examination initial concentration, any type, for parasites, ova or tubercle bacillus	2,609	13,832	2,560	13,533	5.30	X
Culture blood definitive	1,002	12,233	995	12,148	12.21	X
Culture blood definitive including sensitivity study	123	1,812	122	1,800	14.73	
Culture screening for organism, sources other than blood	1,189	4,107	1,101	3,797	3.45	

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Culture (throat) screening for organism	20,881	$103,284	20,567	$101,743	$ 4.95	X
Culture (urine) screening for organism	7,352	36,631	7,252	36,780	4.95	X
Culture screening for organism, including sensitivity study, sources other than blood	11,492	166,113	10,947	159,319	14.45	X
Culture definitive for organism, sources other than blood	1,925	5,580	1,711	4,961	2.90	
Culture (throat) definitive for organism	11,760	58,526	11,322	56,356	4.98	X
Culture (urine) definitive for organism	6,218	31,075	6,088	30,415	5.00	X
Culture definitive including sensitivity study, for specific microorganisms, with isolation of organism, sources other than blood	20,289	283,154	19,144	267,384	13.96	X
Culture urine quantitative with colony count	7,789	76,713	7,425	73,208	9.85	X
Culture urine quantitative with colony count, including sensitivity study, screening	6,066	78,156	5,684	73,311	12.88	X

(continued)

TABLE 2 (cont'd)

Test Procedure	Total State		Cook County		Average Payment Per Test	Tests Totaling $10,000 or More
	No. of Tests	Total Payment	No. of Tests	Total Payment		
Culture urine definitive, and sensitivity study for specific microorganisms, with isolation of organism	6,917	$ 98,148	6,677	$ 94,751	$14.19	X
Cytopathology smears as papanicolaou type, genital source	46,401	384,826	37,478	331,754	8.29	X
Cytopathology smears with review including hormonal evaluation, cytogram, maturation index, estrogen activity, etc.	12,994	116,666	8,538	76,391	9.98	X
Surgical pathology gross only	1,589	12,932	241	2,410	8.14	X
Surgical pathology gross and microscopic, routine up to 3 specimens without individual identification	638	7,357	516	5,855	11.53	
Surgical pathology gross and microscopic, multiple specimens and/or extensive dissection with individual identification or unusual preparation	6,158	60,507	6,106	59,804	9.83	X
Paternity test, per individual, A, B, M, N, C, c, D, E, e	287	2,532	134	908	8.82	
SMA-12	76,335	1,206,216	73,885	1,169,051	15.80	X
Lab profile tests	65	753	61	701	11.58	
Laboratory profile tests	15,649	223,248	12,408	181,731	14.27	X

TABLE 3

ILLINOIS DEPARTMENT OF PUBLIC AID

List of Highest Paid Certified Independent Clinical Laboratories
(Laboratories Paid $10,000 or More)
Calendar Year 1978

Laboratory	County	Charges	Payments
1	Cook	$ 1,222,611	$ 979,084
2	Cook	996,592	727,768
3	Cook	738,249	546,867
4	Cook	304,164	295,752
5	Cook	343,463	285,840
6	Cook	387,070	261,246
7	Cook	301,978	253,027
8	Cook	303,070	247,533
9	Cook	304,166	235,932
10	Cook	305,853	223,909
11	Cook	266,730	205,014
12	Cook	215,056	172,374
13	Cook	239,584	158,367
14	Cook	198,874	154,457
15	Cook	221,960	152,948
16	Cook	192,359	150,852
17	Cook	200,368	149,381
18	Cook	218,942	144,926
19	Cook	370,448	139,821
20	Cook	191,781	138,978
21	Cook	185,060	136,747
22	Cook	189,504	131,382
23	Cook	135,881	105,189
24	Cook	115,637	87,788
25	DuPage	125,628	86,886
26	Cook	128,291	81,058
27	Cook	120,065	80,814
28	Cook	106,036	78,224
29	Cook	98,183	78,156
30	Cook	81,010	74,902
31	Cook	137,967	74,787
32	Cook	99,459	70,859
33	Cook	86,276	66,547
34	Out of State	85,708	51,982
35	Out of State	74,433	51,940

(continued)

TABLE 3 (cont'd)

Laboratory	County	Charges	Payments
36	Cook	$ 94,814	$ 47,558
37	Cook	47,025	47,005
38	Cook	57,677	45,644
39	Cook	55,276	42,746
40	St. Clair	61,361	42,092
41	Cook	47,915	40,096
42	Cook	77,979	37,095
43	Cook	37,147	33,555
44	Out of State	39,904	30,057
45	Cook	37,600	30,029
46	Cook	46,034	29,868
47	Out of State	33,495	28,568
48	Cook	30,458	23,185
49	Sangamon	26,117	22,877
50	Cook	28,863	22,101
51	Cook	36,581	21,904
52	Out of State	27,319	21,770
53	Cook	44,141	20,838
54	Cook	24,306	20,714
55	Cook	25,091	19,690
56	Cook	30,873	19,520
57	St. Clair	24,871	19,364
58	Cook	29,010	19,350
59	Lake	29,989	19,275
60	Cook	25,408	17,869
61	Cook	23,494	17,318
62	Cook	33,800	16,999
63	Cook	26,116	15,503
64	Cook	22,383	14,680
65	Cook	18,334	14,655
66	Cook	20,295	14,148
67	Marion	18,967	12,758
68	Will	22,955	12,398
69	Cook	13,567	10,805
70	Cook	17,662	10,481
71	Cook	11,780	10,263

TABLE 4

Illinois Department of Public Aid
COUNTY BY COUNTY SUMMARY OF CHARGES AND PAYMENTS TO LABORATORIES
(Based on Bills Paid January 1978 thru December 1978)

County	Charges	Payments	Per Cent of Charges Paid
GRAND TOTAL TAB	$10,125,246.63	$7,813,514.58	77.2
OUT-OF-STATE TAB	293,222.43	212,563.88	72.5
COOK COUNTY TAB	9,395,652.46	7,292,194.01	77.6
DOWNSTATE TAB	436,371.74	308,756.69	70.8
Adams	--	--	--
Alexander	--	--	--
Bond	--	--	--
Boone	--	--	--
Brown	--	--	--
Bureau	--	--	--
Calhoun	--	--	--
Carroll	--	--	--
Cass	--	--	--
Champaign	5,157.00	3,620.50	70.2
Christian	--	--	--
Clark	--	--	--
Clay	--	--	--
Clinton	--	--	--
Coles	--	--	--
Crawford	--	--	--
Cumberland	--	--	--
DeKalb	2,726.50	2,359.00	86.5
DeWitt	--	--	--
Douglas	--	--	--
DuPage	126,753.53	90,227.03	71.2
Edgar	--	--	--
Edwards	--	--	--
Effingham	--	--	--
Fayette	--	--	--
Ford	--	--	--
Franklin	--	--	--
Fulton	--	--	--
Gallatin	--	--	--
Greene	--	--	--

(continued)

TABLE 4 (cont'd)

County	Charges	Payments	Per Cent of Charges Paid
Grundy	--	--	--
Hamilton	--	--	--
Hancock	--	--	--
Hardin	--	--	--
Henderson	--	--	--
Henry	--	--	--
Iroquois	--	--	--
Jackson	--	--	--
Jasper	--	--	--
Jefferson	--	--	--
Jersey	--	--	--
JoDaviess	--	--	--
Johnson	--	--	--
Kane	7,468.75	4,501.10	60.3
Kankakee	31,102.76	21,007.26	67.5
Kendall	--	--	--
Knox	--	--	--
Lake	34,879.90	25,107.60	72.0
LaSalle	2,081.00	1,322.00	63.5
Lawrence	--	--	--
Lee	--	--	--
Livingston	--	--	--
Logan	--	--	--
Macon	1,682.75	1,083.00	64.4
Macoupin	--	--	--
Madison	10,616.00	8,473.50	79.8
Marion	16,446.50	12,111.00	73.6
Marshall	--	--	--
Mason	--	--	--
Massac	--	--	--
McDonough	--	--	--
McHenry	22.00	15.00	68.2
McLean	19,126.20	12,575.70	65.8
Menard	--	--	--
Mercer	--	--	--
Monroe	--	--	--
Montgomery	--	--	--
Morgan	--	--	--
Moultrie	--	--	--
Ogle	--	--	--

(continued)

TABLE 4 (cont'd)

County	Charges	Payments	Per Cent of Charges Paid
Peoria	20,071.10	12,080.00	60.2
Perry	--	--	--
Piatt	--	--	--
Pike	--	--	--
Pope	--	--	--
Pulaski	--	--	--
Putnam	--	--	--
Randolph	--	--	--
Richland	--	--	--
Rock Island	2,252.50	1,647.50	73.1
Saline	8,767.75	5,165.75	58.9
Sangamon	30,964.25	25,743.00	83.1
Schuyler	--	--	--
Scott	--	--	--
Shelby	--	--	--
Stark	--	--	--
St. Clair	90,795.25	66,359.25	73.1
Stephenson	756.00	681.00	90.1
Tazewell	--	--	--
Union	--	--	--
Vermilion	--	--	--
Wabash	--	--	--
Warren	--	--	--
Washington	--	--	--
Wayne	--	--	--
White	--	--	--
Whiteside	--	--	--
Will	21,716.00	12,208.00	56.2
Williamson	--	--	--
Winnebago	2,986.00	2,469.50	82.7
Woodford	--	--	--

TABLE 5

LABORATORY TESTS
PROVIDED BY ILLINOIS DEPARTMENT OF PUBLIC HEALTH
TO PUBLIC AID RECIPIENTS

TEST PROCEDURE			PUBLIC HEALTH LABORATORY PROVIDING SERVICE
Agglutinations			C, S
CF - Coccidioidin			C
CF - Histoplasmosis			C
CF - Leptospirosis			C
CF - Tularemia			C, S
Heterophile			C, S
Heterophile			C, S
Rubella (Diag)		(1)	C
Rubella (Diag)		(1)	C
STS qual.		(2)	C, S
STS quan.		(2)	C, S
FTA	(3)	(2)	C, S
Toxoplasmosis (Diag)		(1)	C
Cult - Screen, not blood		(4)	CA, C, S
Cult - Definitive, not blood		(4)	CA, C, S
Phage typing			C
Serol. type			C
Cult type			C
TB sensitivity			C
Virology		(5)	C
Darkfield		(6)	-
Darkfield		(6)	-
Lead blood		(7)	S
Lead urine		(7)	S
Lead blood quan.		(7)	S
Lead urine quan.		(7)	S
CF - Psittacosis			C

(1) Diagnostic only (does not include prenatal workup).
(2) Except where supplied by local health department as: Cities of Chicago, Rockford, Peoria, Decatur-Macon County, Evanston-North Shore.
(3) Treponemal test in current use will be performed.
(4) Limited to the diagnosis of gonorrhea, tuberculosis and bacterial gastroenteritis. (Culture for gonorrhea requires special handling. "Transgrow" bottles are available for this purpose.)
(5) Special instructions are available for virus specimens.
(6) Physician should contact the appropriate public health agency (city, county, or State regional) for services of VD advisor.
(7) Special container MUST be requested. This test is available only from Springfield. SPECIFY TEST WHEN REQUESTING CONTAINERS. Direct requests to the appropriate laboratory.

CA = Carbondale Laboratory C = Chicago Laboratory S = Springfield Laboratory

C. Public Health Laboratories

Since a major motivation for Recommendation No. 518 is for the Public Health Laboratory to accomplish the Medicaid laboratory testing for the DPA, one of our first efforts was to determine if any other state public health laboratories were doing any Medicaid work. Our state laboratory reports[1] showed only one state reporting reimbursement for Medicaid work. We contacted that state and found that they had actually solicited the work in response to legislative pressure to start charging fees for laboratory tests. They are performing the following tests for Medicaid: sickle cell, intestinal parasites, pinworm, and lead. They submit the vouchers to a third party for payment. The laboratory director stated that in most cases the patient will go to the county health department and have the doctor there draw the specimen. The specimen is then sent on to the state laboratory for testing. This state laboratory director pointed out that there were probably a number of public health laboratories throughout the country who are doing Medicaid testing, but were more than likely not aware that it was Medicaid work, and, therefore, were not reimbursed through the Medicaid system.

Another state laboratory director stated that he was quite certain they were doing a lot of testing for Medicaid patients, but there was no way of knowing for certain because they also did not know in most cases what the source of the specimen was. He thought that the county health departments were probably sending them a lot of Medicaid work.

Since none of the other state public health laboratories were reporting Medicaid work in their annual workload reports, we determined that further investigation would probably provide us with little more than the suspicion by the state laboratory personnel that whatever Medicaid work they may be doing would not be labeled as such.

We know of no state public health laboratory who is performing Medicaid testing at anywhere near the proportions proposed by Recommendation No. 518.

[1]Consolidated Annual Report on State and Territorial Public Health Laboratories, Fiscal Year 1979, Center for Disease Control, Atlanta, GA.

D. Competitive Contracting

Further investigation revealed that some state Medicaid agencies (Public Aid) had considered or attempted to put the Medicaid laboratory work on a competitive bidding basis. Attempted, because we were not able to find an instance where a contract of this type was actually issued.

The most significant attempt was by the City of New York. Dr. Martin Paris, in a 1977 Medical Care article,[2] described it as follows: "In April 1975, the New York City Department of Health introduced a program to fundamentally restructure the provision of clinical laboratory services to the City's Medicaid population. In an attempt both to control spiraling costs and to upgrade quality of care, the City Department of Health announced plans to centralize laboratory testing in each of the City's five boroughs by designating a single laboratory, chosen via the mechanism of competitive bidding, to process and test all requested clinical specimens."

A 1978 General Accounting Office (GAO) report,[3] described the contract mechanism: "The bidders were required to submit two price quotations, a maximum aggregate fee and a unit price for each test. The maximum aggregate fee represented the fixed ceiling price, for which the contractor agreed to provide all clinical laboratory services requested within the designated borough during the stipulated time period. This amount was to be the basis for the contract award."

A coalition of clinical laboratories sought injunctions in Federal court to prevent the city from even opening the bids. When the court rejected that proposition, the clinical laboratories sought an injunction to prevent contract implementation.

The GAO report[3] summarized the outcome of the case as follows: "HEW filed a friend of the court brief contending that the proposed contract was contrary to Federal law because it violated a Medicaid recipient's right to choose a laboratory. At the same time, HEW recommended that the city contract for such services on an experimental basis for a limited time.

[2]Martin Paris, M.D., MPH, "Cost and Control of Laboratory Services: The New York City Medicaid Centralized Laboratory Proposal," Medical Care, September 1976, p. 777.

[3]Comptroller General of the United States, Report to the Congress, "Savings Available by Contracting for Medicaid Supplies and Services," HRD 78-60, July 6, 1978.

"In August 1975, the Court concluded that, in effect, the city's authority to enter into its proposed exclusive-contract plan to provide laboratory services to Medicaid recipients might be contrary to Federal law but recognized that some benefits may be derived from contracting for laboratory services. He permitted the city to pursue a contract on an experimental basis." The court allowed the city to proceed with a demonstration project in the borough of Queens and issue a contract, as described above. To date no such contract has been awarded.

The ruling was based on the grounds that the proposed contracting arrangement would violate the Medicaid statute which guarantees patients a "Freedom of Choice" in the selection of medical service providers. (Hereinafter, we will refer to this as the "freedom of choice" provision.)

Dr. Paris, in his article,[2] summarizes the "freedom of choice" provision and the city's reaction as follows: "Briefly stated, under the initial Federal Medicaid legislation, to qualify for Federal support a state had to offer potential Medicaid recipients seven basic mandated services (including laboratory services) and to ensure that: . . . any individual eligible for medical assistance (including drugs) may obtain such assistance from any institution, agency, community pharmacy or person qualified to perform the service or services required (including an organization which provides such services or arranges for their availability on a prepayment basis) who undertakes to provide him such services. . . .

"The city's position was that to apply freedom of choice to the selection of laboratories was an absurdity. The city argued that: (a) patients in fact never exercised discretionary judgment in the choice of clinical labs, that the choice was entirely the physician's Medicaid utilization data indicated that 96% of all specimens were collected by participating physicians in their own offices and then sent to a laboratory of the physician's choice. In almost all cases the patient was totally ignorant of the precise lab chosen. (b) clinical lab services provided only raw data which the physician utilized to make diagnoses. The physician was therefore concerned only with the accuracy and reliability of test results, both of which would be significantly enhanced by the proposed contract. Offering a patient freedom of choice

[2]Paris, Medical Care, September, 1976.

of laboratories would be tantamount to offering freedom of choice to patients of a physician's stethoscope model or blood pressure machine. (c) Clinical laboratories are not independent providers of medical services. They provide ancillary services at the request of physicians and as such it is unethical for a physician to delegate any choice of laboratory to the patient. (d) The relationship of the physician to the patient in the choice of a clinical lab is neither fiducial nor surrogate. (e) Freedom of choice is a slogan used by Medicaid physicians and laboratories to protect their vested interests, not to improve patient care."

Nonetheless, the city was enjoined from issuing the contracts. However, by allowing the demonstration project in one borough, the court recognized the merits of what the city of New York intended with this program. Much research was done by the city of New York Health Department in planning this program, and much information is available concerning costs, fraud and abuse and projected savings under this program. Although much of the information is not directly pertinent to this study, we recommend a reading of the Dr. Paris article.

We have made contact with some of the principals in the New York case and will meet with them to obtain more detailed information on their proposed program. We hope that some of the planning for that project can be applied to this study.

The New York project is important to us because it is the only one that we know of where any large scale attempt was made to centralize the laboratory work for the Medicaid program. It also provides us a legal base to investigate and apply to our methodology for the State of Illinois.

Since the Department of Health, Education, and Welfare had participated in the New York case as a friend of the court and was primarily responsible for the interpretation of the "freedom of choice" provision in the Medicaid regulations, which became the basis for the court decision, we felt that discussions with them regarding their interpretation of this provision were absolutely essential to this project.

E. Freedom of Choice (Federal Position and Legal Status Today)

We found that the old Medicaid agency, as it was in 1975, no longer existed. Through contacts with the new Health Care Financing Administration,

we were able to find a number of the principals who had participated in the 1975 New York case. Accompanied by Arnold Hicks, J.D., another management consultant from our office, we met with a number of personnel from the Health Care Financing Administration in Baltimore, Maryland, and individuals from the previous Medicaid agency who were still working in Washington, D.C. We were interested in determining if the Medicaid people still viewed the "freedom of choice" provision in the same way that they did in 1975. If the same kind of case were to be presented today, would they interpret the regulation as they did in 1975? We were also interested to know if any new legislation had been passed or was pending which would have some bearing on the type of program that we envisioned in the State of Illinois. The most noteworthy of our discussions were those with (1) the HEW attorney who worked on the New York case, (2) the individual who, in 1975, was the head of the Medicaid policy office, and (3) the government accounting office (GAO) personnel who have made an extensive study of contracting for Medicaid supplies and laboratory services. Each of the individuals that we talked to in Washington and in Baltimore were extremely knowledgeable both of the New York case and the Medicaid regulations as they pertained to "freedom of choice" for laboratory services. We found that at the time of the New York case there were many differences of opinion in the Medicaid Bureau regarding the freedom of choice interpretation. The regulation has not changed, and it is our opinion, if the case were presented today that the official HEW position would be the same as it was in 1975. Despite that, we were encouraged by our findings and it seems timely for states to develop some method to reduce public aid laboratory expenditures. Recommendation #518 reflects current attitudes at the Federal level and in many cities and states regarding cost reduction in the Medicaid program.

The freedom of choice controversy is not dead. At the time of the New York decision, the HEW Medicaid agency was divided and there were those who felt strongly that the "freedom of choice" provision could not possibly be interpreted to include "the freedom of a patient to decide to which laboratory the physician would send the patient's specimen." This division still exists within HEW, but there is now before Congress a bill which would waive the "freedom of choice" provision for a three-year experimental period.

HEW is also working on ways to accomplish "volume purchase" of Medicaid services within the bounds of the current regulations. They are primarily concerned with the purchase of eyeglasses and services of that nature, but laboratory services is one of the considerations for such action.

Interviews with GAO personnel revealed that they have conducted a thorough investigation of the contracting concept for Medicaid supplies and laboratory services. As a result of these studies, they have recommended to the Congress and to HEW that the Medicaid regulations be amended to allow "competitive procurement of laboratory services."

Other related items from the GAO report to Congress (HRD-78-60)[3] are listed below:

1. The National Institute for Advanced Studies in July of 1977 issued a report on alternative reimbursement approaches for laboratory services which recommends that the states and HEW take several actions. Included in these recommendations were that HEW sponsor:
   - --A study to develop a relative cost base for laboratory procedures which States would use in establishing maximum fee schedules and which HEW would use to establish national upper limits for fees.
   - --A demonstration project to test the feasibility and effectiveness of laboratory service contracts for specific areas.
2. GAO recommended to the Secretary of HEW:
   - --Expand Medicare's proposed lowest charge regulations to include laboratory tests which are the most commonly ordered under Medicaid.
   - --Require the States to find out what other volume purchasers of laboratory services, such as the Federal government and local agencies, are paying when developing their fee schedules.

The individuals we talked to at the GAO expressed a very strong desire for changes in the Medicaid program on how laboratory services are provided. Their studies show that a considerable amount of money can be saved by the utilization of large centralized laboratories. They were excited about the prospect of a state taking actions, such as that proposed by Recommendation #518.

[3]Comptroller General, Report to the Congress, HRD-78-60, July 6, 1978.

F. Legislation Regarding Laboratory Services

"On July 28, 1977, the Clinical Laboratory Improvement Act of 1977 (S. 705) passed the Senate and included an amendment to Title XIX of the Social Security Act to permit competitive bidding for laboratory services on an experimental basis for 1 year, after which the States entering into such experimental arrangements would be required to report the results to HEW. The Committee report accompanying the bill (S. Rept. 95-360) stated that after HEW has evaluated the experiments, the Committee expects a report on competitive bidding to be presented to the Congress, including recommendations on whether legislative action should be taken to allow such arrangements to continue.

"In addition, Senate bill 705 would amend the reasonable charge provision of the Medicaid law. The amendment provides that payments under Medicaid for laboratory services cannot exceed the lowest amount charged (which is determined without regard to administrative costs that are related solely to the method of reimbursement of services) for comparable services by the provider of such services to any person or entity.

"On March 24, 1978, the House Committee on Interstate and Foreign Commerce reported on a similar bill (House bill 10909 formerly House bill 6221) which contained a provision which would allow states (or parts thereof) to purchase laboratory services for a 3-year period under arrangements, including competitive bidding, which would not be subject to the general freedom-of-choice provision of the Medicaid law provided that HEW approved the plan.

"HEW would determine that services would be purchased only from laboratories that met standards and that prices would not exceed the lowest amount charged to others for similar tests. Additionally, HEW must be satisfied that, under the arrangement, adequate laboratory services would be available to the physician and other providers treating Medicaid patients. The Committee report expressed concern that the proposed legislation not be implemented so as to create a monopolistic situation in any large health delivery area, and stated that the Committee had instructed HEW to report to the Congress on the results of the new arrangement so that it could be determined whether the changes could be made permanent.

"In addition, House bill 10909 contains a provision similar to Senate bill 705 with respect to Medicaid payments not exceeding the lowest rates charged to others by a laboratory."[3]

In February of 1980, the House Interstate and Foreign Commerce Health Subcommittee added to the Medicare and Medicaid amendments a provision that would allow states to award contracts competitively for Medicaid laboratory services. This amendment provides for the State to use bidding in a 3-year trial project. The amendment to H.R. 4000 also limits the allowable markup a physician may charge for laboratory tests performed by an independent laboratory. The GAO estimated, in a recent study, that allowing the states to use bidding for laboratory services could save $53 million in 1981.

G. Recommendation #518 vs Freedom of Choice

The "freedom of choice" provision has been questioned, thus far, as it relates to competitive procurement and a contract award to a single private laboratory to provide services in a given locale. The debates, court case, and proposed legislation still deal only with the private sector laboratory and competition among these private laboratories.

Recommendation #518 introduces a new element, the Public Health Laboratory. Obviously, the "freedom of choice" provision still applies because Recommendation #518 would dictate where the testing would be accomplished and certainly the patient would have no "freedom" to select his laboratory. Even though we may agree with the New York City Health Department's statement that, "a patient's only criteria for judging a laboratory were the superficial amenities provided and by its accessibility," we still must recognize current Medicaid regulations.

Can we simply decree that the State, through its Public Health Laboratory system, will take over the Medicaid laboratory work?

Until the passage of proposed legislation which would waive the "freedom of choice," can Recommendation #518 be accommodated?

Considerations at this point are:

[3]Comptroller General, Report to the Congress, HRD-78-60, July 6, 1978.

1. Ignore Precedents

Assume that the "freedom of choice" requirement is not applicable to laboratory services. The New York injunction is not legally binding anywhere except in New York City. (Realistically, however, we must recognize the precedent value of the case.) We discussed this issue with three HEW Regional Offices and one of them indicated that if one of their states were to submit a plan similar to the New York City plan that they would probably approve it. Their interpretation of the "freedom of choice" requirement is that it does not include laboratory services.

In fact, it appears that there was no HEW involvement in the New York case until the clinical laboratories sought an injunction against the New York City program. In other words, HEW allowed the City of New York to proceed with their plans until objections were raised.

There is no legal reason why the State of Illinois could not submit a plan for approval to test the HEW position on "freedom of choice." Keep in mind that the Illinois case is at once different from New York City because it proposes that a government agency provide the service (Public Health Laboratory). This in itself could be enough of a difference to allow approval.

2. Await Congressional Action

Take no action until Congress passes a bill which waives the "freedom of choice" requirement. A drawback to this is that we know the difficulty and time involved in getting bills through Congress. In this instance, it must be recognized that the New York case was in 1975. The GAO has pushed for HEW and Congressional action since that time and it is still NOT accomplished. Even in choosing such an option, the State should proceed with the planning of a very specific program.

3. Reimbursement Rates to Reduce Profit Motive

One HEW official stated, "A state has the discretion to set the level of reimbursement for laboratory tests at any rate. If the payments were set at rates lower than any private laboratory would

be willing to compete, then the State laboratory would automatically assume the work."

Generally, the recipients of public aid, including laboratory services, are persons who cannot afford private medical services. Thus, if the State and Federal government did not pay the independent clinical laboratories for the public aid work, then, in all likelihood, the work would not be done.

The New York case involved private laboratories competing for public dollars. What are the rights of private enterprise to these public dollars, if the services can be provided by the state more economically through utilization of its public health laboratories? It seems only reasonable that every effort should be made to be as prudent as possible with these tax dollars. If the state can save literally millions of dollars by utilizing state facilities and employees for public programs, then they should be encouraged to do so.

As mentioned earlier in this report, one state public health laboratory director has solicited public aid work for his laboratory as a source of income. We are aware that several state legislatures are now looking at their state public health laboratory as an organization which can charge for their services and thereby reduce the use of tax dollars for their support.

If the state can conduct tests at a cost that would provide sufficient income to pay for the operation of the state public health laboratories and yet show a substantial cost savings as compared to obtaining the tests from private laboratories, then it seems a logical alternative.

4. Demonstration Project Waiver

Section 1115(a) of the Social Security Act permits waiver of otherwise controlling provisions including such provisions as "freedom of choice." These waivers are obtained by the submission of a plan through the HEW Regional Office to the Federal Health Care Financing Administration in Baltimore, Maryland. Such a plan would have to stress evaluation of cost, quality, and timeliness of services and show comparisons to competitive contracting, and rate setting methods.

H. Summary

The Phase II review disclosed some areas of concern which require careful deliberation and the considerations presented in this report are only that, considerations. No conclusions can be established until the consolidation of the three study phases is accomplished.

We do know that the following areas are of primary concern, at this stage. Each of these will be discussed in more detail in our final report.

1. The Public Aid laboratory workload is the largest of those proposed by Recommendation #518 and appears to be the most problematical.
2. The legal considerations of the Medicaid regulations are imposing and present a barrier to Recommendation #518 but are not altogether insurmountable.
3. At this point, it appears that the major program elements of the Public Aid program which are obstacles to the feasibility of Recommendation #518 are specimen transportation, and current resources of the Public Health Laboratory.
4. There are very definite political considerations inherent in Recommendation #518. The implementation of Recommendation #518 would have an enormous impact on the private clinical laboratory industry, especially in Cook and surrounding counties.